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AND

HOME FARMER.

A CHRONICLE OF COUNTRY PURSUITS AND COUNTRY LIFE, INCLUDING BEE-KEEPING.

CONDUCTED BY

ROBERT HOGG, LL.D., F.L.S.

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TO OUR READERS.

AGAIN it is our pleasure, on the addition of one more to the many preceding volumes of this Journal, to express our appreciation of the work of our many friends who have assisted so effectively in its preparation.

In congratulating them on the excellence of their productions—the reflex of sound and successful practice—we also congratulate ourselves that, with one lamentable exception, the late Mr. Alexander Honeyman, our old friends remain with us; also that new ones of promise are enrolled in our ranks.

It will not be inappropriate to refer here to the great bond of sympathy that exists between the readers, writers, and Editors of this Journal, as was exemplified in connection with the melancholy occurrence above alluded to, and we rejoice to state that the widow and fatherless have been cheered and benefited during the past half year.

We can state nothing that can be more acceptable to all than that Mrs. Honeyman has been placed in a position to bring up her family in a befitting manner, mainly by the aid of the sum that was contributed—namely, £144 5s. 4d.

We have peculiar pleasure in making this announcement, as it enables us to feel that our pages have been useful, and we thank one and all equally and heartily—the students in horticulture and frugal self-sacrificing gardeners for their mites, and the affluent for their substantial offerings.

While the past has not proved barren, we are confident there is “good in the future”—mutual help in any difficulty that may arise, and the communication of knowledge that will render our work, as heretofore, satisfactory to ourselves and to our numerous and discriminating constituents.

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3	TH	
4	F	
5	S	
6	SUN	EPIPHANY.
7	M	Royal Geographical Society at 8.30 P.M.
8	TU	Royal Horticultural Society, Fruit and Floral Committees at 11 A.M.
9	W	

THE CHAPLAIN'S NEW YEAR'S ADVICE TO YOUNG GARDENERS.

IF that excellently written and evidently well-thought-over article by "A Working Gardener" in our number for December 13th touched the feelings of "H. Notts," and set him thinking—and I do not wonder it did—so also did the latter's paper, which he entitled "The Journal of Horticulture," touch my feelings and set me thinking. I like now and then, and at this season particularly, to see such good advice in print—plain, practical, and, perhaps some may say old-fashioned advice, and none the worse to my mind for having an old-fashioned flavour in it. I, indeed, cannot claim to have known *The Cottage Gardener* and our Journal for thirty years, but the "Wiltshire Rector" in this periodical comes of age this year, for it is twenty-one years since he wrote his first article and sent it off wondering if it would be printed. After twenty-one years as "W. R." here (I dare not say how many more according to the family bible in the old home in Cambridgeshire) I think I may give advice to young gardeners. As we get older we are apt, I know, to become, according to Juvenal, "praisers of the days past," and must guard against being unduly so; still, it is right to regard past as well as present.

I said recently to a mechanic, "I hope your boy takes to your business." His reply was, "I have not much to complain of, but I wish he would work at little things of an evening by himself, as I used to do, and so try and improve himself; but then young people now-a-days are so much taken up with 'wonderments'—i.e., the Wiltshire for "amusements." And that father exactly hit the blot of the present age among young people. It is the ceaseless round of "wonderments," or what the very old country people in Wilts call "onderments," that take up the time over-much of youths and maidens.

Who will say that dessert is bad in itself, especially the fruit part of it? but if the dessert is eaten and not the wholesome dinner, then the dessert would do harm. So circuses, concerts, all sorts of evening amusements, now so very plentiful, are in themselves harmless, but if too much indulged in a lightness of mind comes on, and a disinclination for useful hand work or head work is sure to come on too. Perhaps the old days had too few amusements, and the world we were boys in was a trifle dull, but what grand men came out then! What reading of an evening! what knowledge was acquired! and afterwards, because of that reading, and because of that knowledge gained, how the young men rose to places of trust and good income!

Then, young men, remember the contest and the struggle of life is now keener and harder. You can't win the prizes of life unless you are much better men than the mass of men in your calling. Says Shakespeare, "If you give way or hedge aside from the direct forthright, like an entered tide, they all rush by and leave you hindmost."

Believe me, too much amusement is a great evil of these

days—it is like eating more cheese than bread, and ruins the mental appetite. The very flood of books and periodicals, novels especially, is apt to be injurious, with many books people get to skipping instead of reading, and mere looking at books in a careless easy-going fashion does no manner of good. In old days there was a saying, "Ah! he's a man of one book," meaning that he had mastered that one and knew it thoroughly.

Now young gardeners, you readers of this journal, and to whom I write, my advice is this: Take a copy yourself, exercise self-denial, and make it your own for ever by buying it. Then master each week's number before the next comes in, or else you get "mixed up" with the numbers. Pencil-mark any article you judge most useful to yourself. Then further, loose numbers are easily lost and not easy to refer to, so exercise another piece of self-denial—buy a half yearly cover, and for a few pence a bookbinder will make your half year's numbers into a book. Mark the table of contents; note on the fly leaves, "This vol. contains so and so, pp. so and so." All this I do and have done for years, and my old volumes are dear friends whom I often consult. I say to myself, "I fancy dear old Robert Fish (bless his kindly and godly memory) wrote something about this subject," and I turn to it. I know my advice is good, I know it from experience. Young men, young gardeners, rise superior to these injuring amusements and these desultory habits of reading, and grasp and hold tight your knowledge, gained by devoting evening hours to study. Secure as you feel the need of them scientific works which refer to your business. Some of you may presently find some bit of experience worth recording; if so, send it to 171, Fleet Street, and it, if useful, will be welcomed there.

Of besetting sins I need not speak, a little voice within will tell you yours. Flee from them as for your very life. I am sure healthy young men need no beer, and that saved, how many books you will be able to buy! Then, I would say, do not be discouraged by not being able to grasp the thoughts of others readily. This will come if you read slowly and give your mind to it. A blacksmith's arm was not overstrong at first, but by using it hard on the anvil it became so. So a man's mind becomes stronger by use. Read and think over that "Word to Young Gardeners," by "A Working Gardener," and equally carefully read "H., Notts" last week's advice to you. Take a manly stand against self-indulgence, and you will gain self-respect, and a man who respects himself will respect others.

Yet another word—cultivate good manners. I sometimes think we are in a sort of transition state, the old respect, some people might call it subservience, of the lower to the higher being gone. A sort of over-independent conceited tone is adopted by the young men; but this is not good manners, and it is a matter of good manners and nothing else. Cultivate then, I say, good manners to all. I hate supple-subservency, but a kindly greeting from a young man's open honest face I dearly love.

Such, then, is the advice which in all good faith I give you young men this new year. Follow it, and I feel sure you will be the better for it. Follow it continuously, and perhaps some here and there in old England and her colonies may in future years date their more steady application to their calling to this year 1884. Generation after generation pass on and away—some in each achieve success; you may not be able all of you to do this, but so act as to deserve success.

I have said I come of age in the Journal this year; for it is just twenty-one years since Mr. Johnson dubbed me his, and its, Chaplain. I was very glad to see a kindly reference to Mr. Johnson by "H., Notts." All older readers will be glad to hear that, though over fourscore, he still enjoys life in his pretty country home. Well, he dubbed me Chaplain, and in that character I have each year given words of advice, a Christmas or a New Year's homily, to our readers. I

hope useful advice. One thing I can claim, it has been advice well meant; and never more well meant than at this time, when I advise young gardeners to spend well their spare time—spend it, not waste it. With these words I wish you all a Happy New Year.—WILTSHIRE RECTOR.

BEGONIA HYBRIDISING.

PERHAPS in the whole history of horticulture we have not a more striking instance of what can be accomplished by careful hybridisation and skilful cultivation, when brought to bear upon a particular race of plants, than is presented in the case of that section of the Begonia family known as the tuberous-rooted. Not only has success been both brilliant and, in a manner, complete, but it has been attained in a marvellously short time when compared with the results of similar work on other plants, the whole work of improvement having been accomplished in about a dozen years; indeed we might almost say it has been done in half that time, for it is only during the last six years that the work of improving the habit and flowers of Tuberous Begonias has been entered upon on anything like an extensive scale. The few hybrids we possessed previous to that period were valued only because of their possessing the combined characters of two distinct species, and were raised most likely because of the interest that is usually attached to hybrids, and not with the view of their proving stepping-stones towards an improved race of garden plants. No doubt these species of Begonia proved much more pliant in the hands of the hybridist, and more prone to cross and recross with each other than is usually the case; but whatever may be the truth on this point, the fact remains that in a wondrously short time horticultural skill has developed from three or four species of Begonia a race of garden plants which, for horticultural purposes, rank among the very best of decorative utility both for the indoor and outdoor gardens.

The history of the Tuberous Begonias bears some analogy to that of the Pelargonium, out of the original species of which the Pelargoniums of to-day have been obtained by means of hybridisation. In the Pelargonium we have a strong line of demarcation between the race known as Show, French, Fancy, &c., and those generally known as Geraniums, and, so far as is known, this line has never been broken by crossing the races one with the other. Out of the crude material our grandfathers possessed in the species of Cape Pelargonium these two distinct races of plants were started, which have since then continued improving in the hands of skilled cultivators until we have now hundreds of varieties of both kinds, and Pelargoniums are absolutely indispensable in gardens.

Whether results similar to those obtained in the case of the Pelargoniums would be obtained with other plants depends largely on the capabilities of such. It is easy to point to cases where failure has been the result of attempts at improvement by means of hybridising. In the case of the Begonia, however, success with one section of the genus points to the probability of equal success with the other section—namely, the shrubby species, if the same skill and care were brought to bear upon them as were devoted to the improvement of the tuberous-rooted kinds. The riches of the shrubby species of Begonia, whether judged from their bright-coloured, large, sweet-scented, or curious flowers, or their erect or trailing, compact, or shrubby habit, or from their great diversity in form and colour of leaf, point to a field in which a full harvest would surely reward the hybridiser's pains. In their free-flowering, free-seeding nature, in the monœcious arrangement of their floral organs, these plants are possessed of just those characters that should make the work of hybridisation easy and full of good results. Whatever attempts have been made at an improvement of the shrubby species have hitherto been limited to efforts at crossing them with the tuberous-rooted kinds, and the result has always been failure. Whether success in this particular direction is capable of attainment we cannot as yet say. So far absolutely nothing has been accomplished, but it would appear that the shrubby species have among themselves all those characters which, if properly worked upon, would yield surprising results.

Although there appears to be some physiological difference between the shrubby species of Begonia and the South American tuberous-rooted kinds which prevents their intercrossing, we have several species the characters of which seem to be intermediate—these are *B. caffra*, *B. natalensis*, and *B. Richardsiana* from South Africa, *B. gracilis*, *B. Martiana*, and *B. cucullata* from South America, and one or two Indian species. In these we have the large tuber and succulent annual growth which are

characteristic of the popular tuberous Begonias, and the shrubby habit and floral characters of many of the shrubby section. It may therefore be said that naturally these intermediate species are the connecting links which unite the two distinct sections. Here we have the key to the road to success in bringing the tuberous and shrubby Begonias together by means of hybridisation, and it may be worth the while of those who are anxious to raise plants that shall possess the habit of the shrubby species and the large richly coloured flowers of the tuberous ones, to commence by operating upon the intermediate species above mentioned.

In the shrubby species of Begonia there is, as already noticed, a wide range of variation both as regards floral characters and habit. In their time of flowering, too, we have a range extending over the whole year, though the bulk of them flower in winter, which should place them in a foremost place for horticultural purposes. Many of them, such as *B. fuchsioides*, *B. nitida*, *B. suaveolens*, and the pretty *B. socotrana*, are already well known and cultivated as winter-blooming plants. In addition to these we have several hybrids raised from different shrubby species which are useful in winter—these are *B. Saundersii*, *B. Knowsleyana*, *B. weltoniensis*, *B. Ingramii*, and *B. ascotensis*. With the exception of *B. weltoniensis* the whole of these bear a close resemblance to each other. When the large leaves and tall-growing species, and those with flowers borne on long erect stalks and in large clusters, are better known and have been improved by skilful hybridisation, we shall have a wealth of fine-flowered, noble-foliaged plants of first-rate value for garden purposes.

Perhaps the only establishment where the less known species of Begonia are to be seen is Kew. There over a hundred species of the shrubby section are grown, and in looking over the collection just before Christmas we saw some thirty or forty species either in flower or in bud. Of these the most noteworthy were *B. socotrana*, whose pretty deep rose flowers are useful for cut-flower purposes, as they last for several days in water; *B. malabarica*, with large bunches of pale pink flowers; *B. xanthina*, with tall-stalked panicles of yellow flowers; *B. incarnata*, a large-leaved species, of which the variety known as *purpurea* is a handsome foliage plant; *B. heracleifolia* and *B. jatrophaefolia*. The tiny species, perhaps the smallest of all the Begonias—viz., *B. prismatocarpa*, was represented by a pan of the healthiest of plants; and its small dipetalous yellow and red flowers, peeping up from among the curiously bi-lobed dark green foliage, was quite a picture. This species never grows more than 2 inches high.—W.

CLEANSING VINES INFECTED WITH MEALY BUG.

FOR the next two months the cleaning of vineries and preparing the Vines for next year's crop will be going on. I pity anyone who has charge of Vines infested with mealy bug, for it was truly said by one of our leading gardeners a few years ago—"Those who have a mealy bug on their Vines may consider it as bad as the phylloxera." I consider it much worse, for in the case of mealy bug the gardener year after year battles with his grievance, giving the Vines their yearly dressing thinking it will be the last required for eradicating the pest; but when the thinning time comes round he finds to his horror that he has been disappointed, as he has found some on one of the bunches. Then there is nothing for it with some but the water engine—a splendid method for increasing the bug besides disfiguring the crop. Taking them out of the bunches with a small brush is another expensive method, the crop of Grapes often not worth the labour to keep the bunches fit for use.

Since Mr. Pettigrew, the able gardener at Cardiff Castle, explained in the pages of the *Journal of Horticulture* the way we got rid of the bug in our vineries I have had many letters from gardeners asking for more information on the subject, and the following successful method in my case may be relied upon.

Presuming there are many gardens with a range of glass composed mostly of vineries with an entrance at each end, they are advised to proceed as follows. Our plan is to commence cleaning the middle house, taking all bedding plants out, if any, and leaving nothing but the Vines to be dealt with; then cover all the border to the depth of 9 inches with long litter from the stables—this saves the soil from being trampled on too much, and catches all insects that may be washed off the Vines or the house. The Vines are next taken down, pruned, and laid along the front of the house; all the loose whitewash is then scraped off the back wall, and nothing is speedier for this work than a Dutch hoe. When the wall is finished and all the dirt settled we give the house a thorough washing down with the water engine, mixing the water with paraffin oil, a little stronger

than it is generally recommended. During the time that the engine is going we cover the Vines with mats; we then wash the Vines with soap and water before taking off any of the bark—this damps the webs that surround the bug, and prevents it blowing about and settling on any part of the house that has been cleaned. After the Vines have been washed, and before they are dry, any loose bark can be taken off and the rods again washed with soap and water; they are then ready for the effectual cure.

To a mixture of clay and water about the thickness of cream one-third of coal tar is added, stirring till properly mixed, and one man keeps stirring the mixture during the time that another is painting the Vine rods. An ordinary painter's brush is used, and instead of keeping the mixture off the eyes of the Vines, as lately advised, rub it well in.

When the Vines are completed the woodwork of the vinery will be dry. This and the wires are then painted. We prefer to do this inside painting ourselves, taking care to fill up every crevice with pure paraffin, then with putty. When the painting is finished the Vines are tied in their places, the long litter is removed, and any loose soil on the border as well; but if the soil is very dry we sprinkle it with water to keep down the dust. Then for a finish the back wall is whitewashed, the hot-water pipes painted, and the border top-dressed. The next vinery can be proceeded with in the same manner as already stated, using fresh litter for the border, and if the plants have to be returned to the vinery that has been cleaned great care should be taken to brush off all soil of the bottom of the boxes or pots.

The advantage gained by commencing in the middle of the range is that we can work to the ends, which prevents carrying rubbish through the houses that have been cleaned. Anyone who has to deal with mealy bug on Vines is advised to give the above plan a trial.—DAVID MURRAY, *Culzean Gardens, Maybole.*

CULTURE OF PHALÆNOPSIS.

WHERE the requisite heat and moisture can be afforded it is questionable if any Orchids are more worthy of cultivation than the above. They are now within the reach of all, as the price asked for them is comparatively low, yet they have not found their way into gardens generally as other Orchids have. This may be accounted for because the idea has become established that these plants are difficult to cultivate, and certainly when seriously checked no Orchids will decline more rapidly in health and vigour; but if carefully attended to their cultivation is rendered easy and success is certain.

An Orchid house is not really necessary for the successful cultivation of Phalænopses; on the contrary, they will thrive in any ordinary growing or suitable temperature. I have frequently seen them in a mixed collection doing much better than in the Orchid house. In the majority of gardens there is a stove, and therefore the system of cultivation that will suit Phalænopses in these structures will be detailed.

The only imported plants of Phalænopsis I have had were established on pieces of bark when they arrived. They were given a moderate degree of heat and moisture and heavily shaded until they commenced growing, which they did in a very short time. Small established plants are very much the best to commence with. No time is better than the present to obtain plants, but care must be taken that they are dispatched during mild weather, and the train by which they are sent should be met, if possible, to prevent the package containing them remaining long in the cold. Their growth is generally completed now and the plants are not making new roots, consequently are less liable to be checked than would be the case if they were in active growth. They are generally sent out in small pans, in which they should be allowed to remain after placing them in the stove, where the temperature at night is about 60°, until February. They should be kept in a moderately moist atmosphere, and the compost never be allowed to become dry. Place them over some moisture-holding material near to the glass as possible. I do not suspend these little pans from the roof because they dry too rapidly. A light position, and plenty of moisture in the atmosphere and at their roots, are required until their roots commence advancing.

Phalænopses are very free-flowering, and the majority will throw up flower spikes, which should be removed from small plants directly they are seen. We are all anxious to see the flowers of new arrivals, but in this case I strongly advise making a sacrifice rather than injure, or at least impede, the progress of the plants by allowing them to flower. If the flower spikes are removed as soon as they appear the plants will commence forming roots by February, and should at once be placed in baskets. The most suitable size is 7 inches square and about 3 inches deep, made of either white or red pine; in fact, any soft wood I prefer to those made of teak. The roots do not cling to the teak with the same freedom as they do to red pine. These decay

much sooner than the baskets made of teak; and even this I consider an advantage, for the wood when decayed is easier removed from amongst their roots if they require larger baskets. If teak is used no attempt must be made to take them out of the basket, but when larger are required the one in which they are growing must be placed inside that of a larger size. A few large crocks should be placed at the base of the baskets and then filled level full with lumps of charcoal, and over these a good layer of living sphagnum moss. This should be well raised in the centre, so that the plant when ready can be placed on the surface. The moss used must be picked clean and placed the day before it is required in the house. The young plants can be turned out of their pans and all the old compost removed, and their roots washed clean in tepid water. Any roots that are dead or have been injured in transit should be removed with a sharp knife. After this place the plants on the raised moss in the baskets, and work some of the same material carefully amongst their roots and above where the new roots are springing from the collar; a little moss should also be placed between the pieces of wood that form the basket and next the charcoal. I may here add we use nothing but living sphagnum moss as a medium for the roots of these plants, and this with established plants is picked out annually and fresh supplied, the small particles being thoroughly washed from amongst the roots and charcoal by pouring tepid water out of a small watering can into the baskets.

After placing the plants in baskets the position in which they should be suspended is the next consideration. Our plants are grown in the stove, which runs nearly north and south, the door being at the former end and a brick end at the latter end, which is covered with Ferns, Lycopods, &c. The plants are suspended under the last light (south end) on the east side of the house. The condition of our plants proves that they enjoy the position accorded them, and when they are once found to grow luxuriantly in any position do not shift them, or they may gradually decline in vigour.

Watering and syringing are of particular importance in the successful cultivation of these plants. Directly they are placed in their baskets a good soaking of warm water should be given them, and afterwards spray them with the syringe twice daily. Encourage the moss to grow from the time it is first placed in the baskets, and after it is started give abundance of water. If the atmosphere is moderately moist and the moss growing luxuriantly we find the plants receive just the treatment they require as regards water and moisture. When the season has fairly advanced I lightly syringe the plants many times during the day when bright and warm—in fact, never allow the wood of the baskets to become dry. During the growing season the baskets and moss should be saturated with water. As the autumn advances I syringe the plants less, but never fail to do it once daily unless the weather proves very sunless or wet. Even during the winter I give sufficient water to keep the moss alive and healthy.

Shading is of great importance and cannot be dispensed with. They cannot bear strong sun, and if allowed to strike directly upon them injurious results will follow; on the contrary, shading should not be carried to the opposite extreme at the expense of light. Fixed shading should not be employed, and only such that will break the direct rays of the sun. The position our plants occupy compels particular attention in the morning, and often it is necessary to shade them by 7 A.M., especially in the early season, until the Allamandas spread over the roof. Fortunately the morning sun only affects the plants, that from the west being shaded from them by means of blinds during the afternoon; and the blinds on the side where they are suspended can be drawn up early in the day, and thus the plants receive abundance of light to solidify their growth. Light is important, for if a soft growth is encouraged the plants fail to pass the winter in such good condition as they will when the foliage made is thin and leathery.

Air is admitted freely on all favourable occasions during the summer. We commence early in the morning as soon as the temperature is rising by admitting it at the base, the ventilators being formed in the brickwork below the side stages and opposite the hot-water pipes, and then from the top if the temperature continues rising. Early in the spring when the air is cold the blinds are preferred to admitting cold currents of air, and seldom during the winter and spring are the top ventilators opened. I am no advocate for a close confined atmosphere, and prefer the admission of air daily, if only for half an hour, if it can be given with safety.

If the plants become unhealthy the best plan to recruit them is to turn them out of their baskets and remove all dead and decaying roots, and wash those that are alive. They should then be secured to a piece of wood or bark with the smallest portion of moss, and again suspended until they commence rooting afresh, which they often will do in a very short time if they have not been allowed to decline too far.

The night temperature of the house in which our Phalænopses are

grown ranges about 60° during the winter, with a rise from fire heat of 5° by day; summer temperature, night 70° to 75°, and by sun heat 85°, and often run up to 90° and 95° when the house is closed in the afternoon. We draw no hard-and-fast lines in the regulation of temperatures, and are guided entirely by external conditions.

Amongst insects thrips prove the greatest enemy to these plants, as they soon injure and disfigure the foliage. If watered and syringed as described these insects will not trouble the plants during the summer; but if they appear in winter sponge the foliage frequently with a little weak tobacco water.—W. BARDNEY.

CHOU DE BURGHLEY.

I WAS surprised on opening the Journal of last week to see the letter of "A Working Man" condemning the excellent vegetable Chou de Burghley. I have grown a bed of them, and in no way do I regret the experiment. Mine have not made any very white hearts, but they have been very good when cooked. They have had some frequently in the kitchen here, and the cook, who by-the-by, is good at cooking vegetables, thinks there can be but one opinion about it—that it is an excellent vegetable. My wife has also cooked some, and she tells me it takes but very little longer than ordinary Cabbage to boil, and is always very pleased when I bring any in for dinner.

I quite agree with your correspondent, Mr. T. W. Sanders, in his remarks about Peas, as I find Ne Plus Ultra to be the best late Pea.—A SUSSEX GARDENER.

THE merits of the above having been much discussed in the Journal lately I cannot refrain from giving my experience, especially after what your correspondent, "A Working Man," says on page 531. My experience is quite the reverse of "A Working Man's." Having heard so much of its good qualities I decided to give it a trial. The seed was sown the first week in April. When the plants were large enough, and as our garden is small, to make the most of it they were planted between rows of Peas. With no better treatment than this they did remarkably well. We commenced cutting early in September. But before introducing them to the cook I tried them myself, and must say candidly that they proved delicious, and, to use Mr. G. Abbey's words, as "tender as a chicken." In fact, all that Mr. Abbey says on page 511 respecting them I can endorse, as his experience exactly coincides with mine. Since introducing them to the cook they have been well patronised, and not through necessity, as we have now, and have had all along, a good supply of Cabbages. As regards the time required to boil them as "tender as chickens" we find half an hour ample. I may add, however, that a small lump of soda is placed in the couter in which they are to be boiled.

Thus having proved to my satisfaction its great superiority to Cabbage and kindred vegetables in every respect, I shall take care to have a good supply in the coming season.—J. RICHARDSON.

"A WORKING MAN" on page 531 gives evidence of the 'cuteness resulting from an education above the ordinary character, and upon that I beg to compliment him; at the same time I may remind him that it is only misapplied when employed to criticise others not so favourably circumstanced in that particular, or to call in question their veracity. Does "A Working Man" think anyone can spend thirty-six years in a garden and not know the difference between a Cabbage and Chou de Burghley? I do not suppose "A Working Man" will care to know that I am not a "cook," but I have the authority of a good one for saying that it takes no more time to boil Chou de Burghley than Cabbage, Savoy, &c. But as "A Working Man" is so fastidious I may tell him that I boiled some Chou de Burghley as "tender as a chicken" in thirty minutes, the time being reckoned from the boiling. The flavour is "in" the vegetable, and only needs to pass a palate unimpaired by coarser vegetables to be recognised as distinctly marked. Lastly, I may inform "A Working Man" that I have been acquainted with Chou de Burghley since 1878, when it was awarded a first-class certificate by the Royal Horticultural Society, and there surely has been ample opportunities of testing its hardness since; but it is only this season I gave it a fuller trial to test its merits, and discovered it excellent, which is more than can be said for many "bastard" Broccoli that have been made to stand for the legitimate article. It is a mistake to presume that Chou de Burghley cannot be taken after Potatoes, as both our batches followed Myatt's or Veitch's Ashleaf. It may be true that it takes up more room than Cabbage of the Little Pixie type, yet ours are only planted the ordinary Cabbage (not Pixie) distance, and one head is worth half a dozen Little Pixies in both bulk and quality. The one is coarse (as I maintain all winter Cabbages are), and the other delicate and delicious, without a trace of "Broccoli leaves" flavour, or Broccoli either.—G. ABBEY.

FRAGRANT ROSES.

THE following Roses may be added to your list of Hybrid Perpetuals on page 540 as well scented; some of them are very fragrant. I have not included sorts which have been withdrawn from the sale catalogues. There are several very richly scented Roses which might be added to the list, but which, though occasionally classed as Hybrid Perpetuals, are commonly ranged under some other title, as Miss Ingram, or as H. B.'s, Acidalie, Sir Joseph Paxton, and others. An objection may be made

to a few in my list as not well scented, and I may have erred in a few instances where I have not the variety in my gardens. I wish some competent person would perfect a list of all the well-scented Roses in cultivation.

It has given me much pleasure to read the arguments of your correspondents in favour of propagating Roses on their own roots instead of upon foreign stocks. There is not a point in the observations I sent to you that has not had the countenance of experienced rosarians.—W. SIMONS.

Alfred Dumesnil
Alice Dureau
Alphonse Damaisin
Anna Alexicif
Auguste Neumann
Baron Bonstettin
Baronne Prevost
Beauty of Beeston
Bernard Verlot
Black Prince
Boule de Neige
Calliope
Camille de Rohan
Catherine Bnll
Charles Darwin
Charles Lee
Charles Rouillier
Claude Levot
Cœur de Lion
Comte de Nanteuil
Comte Raimbaud
Constantine Tretiakoff
Coquette des Blanchés
Deuil de Col. Dufour
Devienne Lamy
Dr. Hooker
Duc de Rohan
Duchesse de Caylus
Duchess of Bedford
Duchess of Sutherland
Dupuy Jamain
Edward Pynaert
Elizabeth Vignerot
Etienne Dupuy
Eugénie Appert
Eugénie Verdier
Felix Genaro
Ferdinand Chaffolte
Firebrand
Fisher Holmes
François Courtin
François Fontaine
Gabriel Luizet
Gabriel Tournier
Géant des Batailles
George Moreau
Gloire de Bourg la Reine
Gloire de Santenay
Glory of Cheshunt
Glory of Waltham
Geresoli Gaetano
Gustave Reveillod
Henrich Schultheis
Horace Vernct
Impératrice Eugénie
Jean Dalmaise
Jean Liabaud
Jean Rozencrantz
Jean Souper

Julie Touvais
La Reine
La Rosière
Le Havre
L'Esperance
Lord Macaulay
Louisa Wood
Mabel Morrison
Madame Bellenden Kerr
Madame Boll
Madame Crapelet
Marie Cirodde
Madame Creyten
Madame Ferdinand Jamain
Madame Freeman
Madame Hunnebell
Madame Laboulaye
Madame Lacharme
Madame Morcau
Madame Oswald de Kerchove
Mrs. Rivers
Madame Scipion
Madame Thevenot
Madame Verlot
Madame Vidot
Mlle. Bonnaire
Marguerite Brassac
Marguerite D'Ombrain
Marie Closen
Marie Van Hontte
Maurice Bernardin
May Quennell
Miss Poole
Mons. Boncenne
Mons. Montigny
Mrs. Jowitt
Olga Marix
Oxonian
Perfection des Blanchés
Perfection de Lyon
Pierre Seletzki
Prince Portia
Queen Eleanor
Queen Victoria
Red Rover
Reine des Beautés
Rosy Morn
Souvenir d'Adolphe Thiers
Souvenir Arthur de Sansal
Souvenir Auguste Rivière
Souvenir Charles Montault
Souvenir de Louis Van Hontte
Souvenir de Mons. Boll
Souvenir de Mons. Poiteau
Souvenir de Spa
Thérèse Levot
Triomphe de France
Villaret de Joyeuse
William Jesse

ASTROCARYUM MEXICANUM.

THE genus *Astrocaryum* belongs to the *Cocoeæ* section of the order *Palmaceæ*. It is composed of a few handsome species, and amongst them *A. mexicanum*, a representation of which is given in fig. 1, is by no means the least elegant.

The species are all more or less armed with long, sharp, and formidable black spines. The genus is distinguished by its unisexual flowers, which, however, are not produced on separate plants, but really upon the same spike. The spikes are simply branched, and the female flowers are confined to the lower portion and the males to the upper, which would appear to be a wise arrangement of Nature to insure the fertilisation of the flowers, for with their positions reversed impregnation would be extremely problematical. The fruits are oval and single-seeded. In their natural habitats the plants affect the banks of streams and large rivers, and I believe they are seldom found at any great distance from water which is the general rule with Palms armed with spines. *Astrocaryums* are slender-stemmed plants, carrying extremely handsome heads of broadly pinnate leaves, which in *A. mexicanum* are dark green on the upper side and pure white beneath. This species is extremely ornamental in a collection of tropical plants, and is also one of the best for exhibition, either in a collection of Palms or mixed stove and greenhouse plants; but it will never become an amateur's plant, or a plant for the decoration of apartments, for the simple reason that it will not long retain its beauty out of the temperature of the stove.

The soil best adapted for *Astrocaryums* is a mixture of loam and vegetable mould in the proportion of two parts of the former to one of the latter, adding sufficient sharp river sand to make the whole feel

gritty in the hand. The young plants should be potted firmly; and liberally supplied with water both winter and summer; indeed, in summer it will be highly beneficial to place the pot or tub in a large pan of water.

A figure of the fruit of this plant was given in the Journal, page 553, vol. v.—E. C.

PAST v. PRESENT WRITERS—OLD AND YOUNG GARDENERS.

WHAT is the matter with "H., Notts?" Is his communication on page 544 last week a burlesque, or was it penned in "sober seriousness?" Conscious, no doubt, of inherent strength, the Editor did not "stop" his hypochondriacal correspondent, preferring apparently to leave him to the Philistines.

The "modern scribes" whom "H., Notts," is so much concerned about are no doubt quite able to take care of themselves; but does he not perceive that they cannot oppose his dogma without laying themselves open to a charge of egotism? Not a few men of undoubted ability hesitate to proclaim their own "skill and capacity." They succeed, however, in maintaining their own credit by the excellence of their work, and endeavour to be useful to others by communicating knowledge born of experience.

Why, as a disciple of the honoured men who have gone before, does not your clever correspondent follow their example? It is clear he has the pen of a ready writer, and if he possesses in an equal degree sound and practical knowledge on gardening matters, as presumably he does, would it not be more consistent to endeavour to make some return by enriching the pages of a journal which he admits has done so much for him, than to spend his time in demonstrating the truism that every generation does not produce a Macaulay, Scott, or Shakespeare?

Your correspondent's strictures on young gardeners are far too sweeping to be reliable. With as much accuracy he might represent that *all* the gardeners of the past were as good and able as the few he quotes, and himself, as that *all* the young men of the present are as his peculiar fancy has painted them. Extreme criticism, however, seldom does harm, because—it is extreme.

Some thoroughly good practical articles like those of old will now be expected from "H., Notts," by—A PHILISTINE.

HOWEVER good the object may be of many of those who write for the advice of young gardeners, it is to be feared that the amount of good done is not at all proportionate to the quality and quantity of the advice tendered. Gratuitous advice is not welcomed by those it is intended for. It is well meant, none of us doubt that, and we listen respectfully to what is said for our special edification, admire or laugh at it, and very often forget it. Speaking for that portion of the readers of the *Journal of Horticulture* and other garden periodicals who do not read "skimingly and slightly," as "H." asserts the larger portion of young gardeners do, it would be far more edifying to them if the matter submitted for their instruction savoured less of the lecturing style and more of good practical information on subjects horticultural. If we are not as good as our grandfathers were when young, it cannot be for lack of advice; but it is well to remember that Beatrice said she could easier advise twenty than be one of the twenty to follow her own instruction—a common failing among our species.

"H." leads us to believe that he has long passed through the snares and pitfalls which beset the path of youth, and that he has passed through unscathed. We heartily congratulate him, as also we do on his having acquired ability and skill sufficient for his present position, which we trust is a good one; and we shall not attempt to rob him of the satisfaction he derives from the result of his comparison of to-day's young men with those of a past age when garden literature and gardeners were superior to what they are now. We do not admit, and will not deny, the accuracy of his opinion. Nothing to our advantage would accrue from the discussion of such a dictum. His sweeping accusations against the present generation of young gardeners, however, cannot be allowed to pass with impunity. He says, "I know quite well that the old plodding spirit is fast dying out of our young men," by which he must mean that there is a want of perseverance and energy observable in their work. How does "H." know that? Such an accusation ought not to be made unless it can be proved, and it appears to us that to "know" that it is so is rather more than falls within the ken of any man. Not a single fact is adduced in support of such a charge, and it seems to us there is an abundance of facts which lead to a very different conclusion. The high tone of garden literature generally and the large demand there is for such, the steady rapid advance in all branches of horticulture made during the last decade, the interest taken in the scientific branches of gardening art, are due at least as much to

the younger as to the older votaries of horticulture. Skill and intelligence on the part of the subordinate play a large part in the successes of any garden. If I might be allowed to make a comparison between the young and old gardeners I should point to the exhibition tent, where the young meet in competition with the veterans of horticulture, and are not always second. I do not mean to assert the superiority of the younger gardeners, but I do most unhesitatingly aver that we have abundance of proofs that horticulture will not be allowed to fall from its present high position by those who are to continue its work. If "H." has the misfortune to know only the dark-coloured sheep of the flock, let me assure him that there are plenty of white ones also.

With regard to education, we all know that success in any proper calling is through the school-book. But the growth of intellect depends on much more than a study of Lindley Murray and Colenso. To exclude all subjects from the studies of young men but those bearing directly on their vocation is as fatal in horticulture as it is in every other calling. A good foundation of general knowledge is the keystone to the study of special subjects. The mental powers must be first of all cultivated before they are used, and the higher the cultivation is the better will be



Fig. 1.—*Astrocaryum mexicanum*.

the results. "The brain is like the hand, and grows with using." There are many things essential to the make-up of a good gardener besides a knowledge of rotation of crops. One-idea men are narrow-viewed.

What "A Working Gardener" says on the subject of pleasure is pretty much what we heard at school. Until we are old men the delights of youth have their fascination, and we are not to be deprived of them. I am afraid to think what sort of beings we should be moulded into if we followed all the advice that is given. Is there to be no pleasure for young gardeners? It has its place in every young man's existence and to ignore it shows lack of wisdom on the part of our self-appointed advisers. I enjoy my "cane and kid gloves," a dance, a song, a novel when I am tired with or do not feel inclined for harder studies, and I do not think they harm me. Life is surely something more than mere bread-winning. In conclusion I would say advice is thrown away on those who are determined to get on; and for the black sheep—well, perhaps they read it—but in the words of the proverb, "You can bring a horse to the water but you cannot make him drink."—A YOUNG GARDENER.



RELATIVE to the VEITCH MEMORIAL prizes alluded to on pages 529 and 548 of last Volume, the Trustees have decided to allot the following medals and prizes during 1884—namely, I. A Veitch memorial medal and prize of £5 for each of the following subjects: (1) The best specimen Orchid in bloom; (2) the best stove or greenhouse plant in bloom; (3) the best dish of two bunches of Grapes, one variety—these to be offered at the Dundee International Show which takes place on September 11th to 13th. II. A Veitch memorial medal and prize of £5 for (1) the best specimen Orchid in bloom; (2) the best stove or greenhouse plant in bloom—these to be offered at the Royal Botanic Society's Show on May 21st; and for (3) the best dish of three bunches of Grapes to be offered at the Royal Botanic Society's Show on June 18th. III. A Veitch memorial medal and prize of £5 were also placed at the disposal of the respective Committees of the National Auricula Society (Southern Section); of the National Carnation and Picotee Society (Southern Section); and of the Committee having charge of the National Dahlia Show. These prizes are only eligible to be competed for by amateurs and *bonâ fide* gentlemen's gardeners.

— WE learn that Messrs. Boyd & Sons of Paisley have entered into a contract with the Government to construct, for the sum of £4300, the NEW PALM HOUSE AT GLASNEVIN, which is to be 100 feet long, 80 feet wide, and 65 feet high. The new house is to be built over the old one, the latter to stand till the completion of the new and more imposing structure.

— THREE or four tubers of the NEW SPECIES OF POTATO, discovered by M. Ohrond at the mouth of the Rio de la Plata, and named after him *Solanum Ohrondi*, have been forwarded to Mr. Burbidge, of the College Botanic Garden, Dublin, from the Continent, and he will grow them in the coming year.

— A CORRESPONDENT obliges us with the following notes:—"As far as the winter has gone the weather has been extremely mild in the north, and it can hardly be imagined that Christmas is round again. When at DALHOUSIE CASTLE, N.B., the other day Mr. Johnstone, the gardener there, stated he had cut twenty-two dozens of China and Hybrid Perpetual Roses from standards and dwarf bushes growing in a rather exposed situation on December 17th, and on December 24th there were some beautiful Gloire de Dijons on the walls in the garden. The yellow Jasmine was also very beautiful. In the houses there were some fine samples of Gros Colman and Lady Downe's Grapes well finished. Dalhousie is a beautifully situated garden, and the surroundings of wood and water are charming. The Castle dates far back, and has an interesting history."

— ORCHIDS AT NEWBATTLE.—Orchids are extensively grown at Newbattle, and there are some fine specimens of many of the choicest varieties. The noble owner takes great pleasure in these interesting plants, and has had specimens of most of the varieties bloomed at Newbattle painted by a lady artist. There are a great many so depicted, and being done on a large scale and finely mounted they form a splendid collection and fill numerous large portfolios. Anyone fortunate enough to see these beautiful paintings cannot fail to be delighted.

— A VISITOR remarks that although seldom seen in ordinary gardens BROMELIADS are nevertheless well worthy of accommodation in every stove, and would well repay any extra attention by the brilliancy of their varied colours. In the stove at Kew these plants are made a speciality, which is well repaid by the constant supply of flowers. Among those in flower at present may be noted *Vriesia brachystachya*, *Æchmea cœlestis*, *Æ. calyculata*, *Lamprococcus fulgens*, *L. Weibachi*, *Pitcairnia zeæfolia*, and *Bilbergia Lietzei*, which has flowers about 2 inches long and very finely coloured.

— MR. H. LISTER, The Gardens, Easton Lodge, Dunmow, writes—"I have this season had a sport from *Chrysanthemum Empress of India*, which seems to be identical with Lord Alcester, judging by the description given. The bloom is large, well-built, and the colour is pale

yellow, somewhat like George Glenney." It is strange how on several occasions similar sports have appeared in different parts of the country about the same time.

— THE true name of a bulb that is being pretty generally distributed under the title of *Bulbocodium trigynum* is *MERENDERA CAUCASICA*. The difference between the two genera to the casual observer is hardly discernible, and consists only in the *Merendera* having the three styles free, while in *Bulbocodium* they are undivided. The above-mentioned plant, from the fact of its coming into flower at this early period in the open, and also in its floriferous character—each bulb generally producing from five to seven pure white flowers, those of the *Bulbocodium* rarely producing two—is likely when better known to be extensively cultivated. It requires similar treatment to the other members of the genus.

— AMONG the many hardy bulbs that are welcome at this season of the year *COLCHICUM LUTEUM* and *C. CROCIFLORUM* are very notable for neatness of habit and brilliancy of colour. *C. crociflorum* is a native of Turkestan, whence it was introduced two or three years ago by Dr. Regel. The name *crociflorum* was used for a variety of autumnale, and also for montanum, but the Turkestan plant is so distinct that no difficulty will be experienced in distinguishing it. The flowers are small and very neat, the inside pure creamy white, the flowers appearing before the leaves. *C. luteum* is the only species having yellow flowers, it belongs to the group inhabiting the Mediterranean. The flowers are much larger than the last, pure yellow, and a great acquisition amongst Christmas flowers. Both the above may be had in flower in December by simply protecting them with handlights in severe weather.

— "M. S." writes—"In the note of the meeting of the Society of Arts Dr. J. F. Watson does not speak very hopeful regarding the general cultivation of RHEA OR CHINA GRASS (*BOEHMERIA NIVEA*). In the neighbourhood of London, and I have no doubt farther north, this plant instead of requiring great care in cultivating as stated is quite hardy, and in ordinary soil the stems attain a good height. In a few places I have seen large patches growing quite exposed, and I was told they had not been disturbed for three or four years, and appearing stronger every year, a fact which goes a good way to prove that if there was a possibility of market growers or others being able to obtain good healthy roots we might yet be able to cultivate this valuable fibre and supply the market at a much lower price than £35 per ton. It is partial to strong soil, and ought otherwise to be fed occasionally with liquid manure. The roots should in no case be disturbed."

— A REMARKABLE instance of mimicry in plants is to be seen in the close resemblance of *SENECIO MACROGLOSSA* to the COMMON IVY; a resemblance so close, in fact, that without the flowers to guide us it would be difficult without closely scrutinising the plant to perceive any difference between them. In addition to this interesting character *S. macroglossa* possesses good horticultural qualities in the size and beauty of its flowers, which may not inaptly be compared to some of the now popular single Dahlias. They are yellow, the size of a crown piece, and are borne in considerable numbers on the points of the growing shoots. Flowering as it does in midwinter and under conditions as regards cultural management that are met with in most gardens, we are surprised that the plant is so little known.

— THE fortnightly meeting of the MANCHESTER HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY was held last week at the old Town Hall, King Street, when a very large company was present. Mr. Bruce Findlay, President, occupied the chair. Mr. W. Birkenhead read a paper on the cultivation of Ferns. He dwelt upon the natural conditions in which Ferns are met with, noticing how modest and retiring a spot many of them choose for themselves; so in our attempts to grow them a quiet and shady position will suit many which, if placed in high and airy stages, would cause many to shrivel and pine away. *Todea superba*, *Todea pellucida*, and many of the *Hymenophyllums* would come under this head, and among this class less heat was needed than hitherto many had been disposed to give. He had received letters from gentlemen in many parts of the country assuring him that though their plants had been frozen for days together, no harm whatever had resulted from such a severe ordeal. *Nothochloena*, *Cheilanthes*, and *Gymnogrammas* must have a treatment in many respects the opposite of the preceding. Light, an airy situation, and much less moisture would be required, and when successfully managed they are amongst the most beautiful of the family.

Mr. Birkenhead showed the folly of potting Ferns too firmly, preferring a rough open soil in which cinders and sand formed a not inferior part. A number of questions were asked and replied to, and some further information on the subject was imparted by the members who took part in the discussion, amongst whom were Mr. Ellis (Pendleton), Mr. Nield, Mr. T. Lunt, Mr. W. Plant, Mr. McKellar, Mr. Findlay, and the Honorary Secretary, Mr. W. Swan. It was announced that the next meeting would take place on Thursday, January 10th, 1884, when Mr. F. Robinson (Messrs. Dickson & Robinson) will read a paper on the Tulip.

— A LOVER of bulbous plants writes—"I read in the Journal recently with much pleasure that a border was being prepared at Kew for CHOICE BULBS OUT OF DOORS, and during a recent visit to that establishment I observed that it was completed and partly planted. It appears to have been done in a very thorough manner, and I shall look forward to many pleasant visits in the future, when I may expect to see some of my old favourites in flower. We are all familiar with the brilliance of Tulips, Hyacinths, Crocuses, and others that are usually employed for bedding purposes, but too few know the number of delicately beautiful plants included amongst many genera of the great families Liliaceæ and Amaryllidaceæ. Except to botanists and a few specialists hundreds of these are unknown, and it is to be hoped that this praiseworthy experiment at Kew will assist in popularising a really charming and much-neglected group of plants. Much also will undoubtedly be added to the small store of knowledge we possess concerning the cultural requirements of many of these plants, for with the exception of such experienced cultivators as Mr. Green of Pendell Court, few have had an opportunity of studying their special wants, and the recorded information available upon such matters is too often quite unreliable."

— THE third number of the "SCIENCE MONTHLY" continues its work in a satisfactory manner, and contains well-written articles upon "Earthquakes," "Lost Comets," "Some Account of New Guinea," "Lessons from Common Plants," "Extinct Volcanoes of the British Islands," and a biography of Sir William Thomson, with a portrait. The columns devoted to scientific news are filled with interesting facts, and the various other departments are also well supported.

— THE December issue of "L'ILLUSTRATION HORTICOLE" contains coloured plates of three very distinct plants. One of these is *Echeveria decora*, which is believed to be a variety of *E. metallica*, resembling that species in habit and form of the leaves, but the colouring is very different. The principal ground tint is a peculiar purplish green with irregular stripes of pinkish yellow, the stem being of a pale rosy hue. *Tapeinotes carolinæ* var. *major* is a handsome Gesneraceous plant with fine elliptical or oblanceolate leaves, deep green, with a glaucous tint on the upper surface, and rich red beneath. The flowers are produced freely from the axils of the leaves, the stalks being nearly erect, but the corollas hang downwards. They are curiously bulged at the middle, but much contracted near the mouth; the lobes are small, rounded, and pale yellow, the other portion of the flower being white. The calyx is large with ovate tapering sepals, deep green, edged and tipped with red. The species was discovered in Mexico in 1859 by Dr. Wawra, and the variety was introduced to the continent by M. de Macedo Costa of Bahia. The third plate represents *Batatus paniculata* a strong-growing and beautiful climber that is too little known in gardens. The leaves are large and deeply divided into five to seven narrow palmate segments. The flowers resemble a large *Convolvulus*, and are of a rich rosy colour, the centre and tube being deep crimson. It flowers very freely and continuously, though the blooms individually are of short duration. A fine specimen is grown in the old Lily house at Kew.

— THE *St. James's Gazette* in discussing "Neglected Vegetables," has the following with regard to the fruit of the purple Egg-plant, or AUBERGINE:—"Another most valuable plant, unknown in this country save as an ornament in the quasi-tropical gardens or in shrivelled specimens in the windows of the foreign dealers in Covent Garden Market, is that for which we have no English name—*Solanum melongena*, the purple variety of the Egg-plant, known in France as Aubergine, in Spain as Berengena, to Anglo-Indians as Brinjal (a corruption of the Spanish name), and to Turks by a name most impolite. This is one of the most precious of the great *Solanum* family, greatly esteemed all over the tropical and warm temperate world, which only needs to be better known in England to be liked as much as its first cousin, the Tomato. Supposed to have been originally introduced from

America, the use of the Brinjal has spread all over the East. Sancho Panza tells us that the Moors of his time were especially fond of it. In Spain it has always been most popular. The Brinjal in its habits is very like the Tomato, and may be grown in English gardens without any more trouble. As with the Tomato, the main secret of success is to sow the seed in a hotbed or under glass, and have the plants well forward before they are put out into the open. In an ordinary English summer the fruits ripen readily against a south wall, the plants requiring no further care than copious and constant watering. The Brinjal may be cooked in various ways—either cut in slices and fried in oil, or parboiled and then the interior taken out and fried with force-meat, or put into stews and curries. One precaution it is necessary to take, and that is to steep the fruit, after being cut in half, in water for half an hour or so. This is done to expel the poisonous element which this, like all the other members of the genus *Solanum*, contains in more or less degree."

PROPAGATING HARDWOODED PLANTS.

"A FOREMAN" (page 552) says that *Ericas*, *Epacris*, and *Azaleas* should be propagated in the spring and *Camellias* in the autumn. I would advise your correspondent to propagate *Ericas* in September, and then not in a forcing house, and when standing them in the open air not to place them behind a north wall, but in the open, so that one plant shades the other, placing a piece of board against the outside row of pots; then, with attention to stopping at the proper time and careful watering, plants may be had with a good constitution and masses of bloom by the time their blooming season arrives. I can assure "A Foreman" that those robust plants in 48's that may be seen in Covent Garden Market by thousands at this time of the year are not grown under the system he recommends. *Azaleas* and *Camellias*, I think, are best grafted. A good stock for *Azaleas* is *A. Sir Charles Napier*, but gardeners as a rule do not graft them, leaving this work to the trade.—A. YOUNG.

STORED-UP SAP IN VINES.

"It appears to me," says "Beta," "that he has avoided repeating the statement as to the exact size the shoots and leaves attain before the stored-up sap is exhausted. In his principal argument he is undoubtedly right, but in this I consider he errs, and I would advise a graceful retreat from an untenable position."

Now I cannot understand that anything has yet occurred to make my position untenable. The mere assertions of half a dozen people who have no records of experiments to support their particular views certainly will not do it. As I have said before, my theories and deductions are open to criticism and argument, but the facts of observation must be taken as absolute facts. I will re-quote the passage from "Beta's" letter, and point out where the practical facts end and where the theory commences. "The shoots are now from 3 to 7 inches long, with two to four fully expanded leaves, the largest of which measure $4\frac{1}{2}$ or 5 inches across. Here and there in a few of the older ones are patches of dark colour, a sort of bluish green, only visible at present to the practised eye which is watching for its appearance. Yesterday it was only discernible on two or three leaves, now it shows slightly on a score or more." Then comes the bit of theory, which we will leave out for the present.

If the above passage had been written last month from memory there might be grounds for suspecting I had stretched a point, but when I state that it was written word for word on the precise date I attached to it and in the house where the Vine in question was growing, and that all measurements recorded in the series of articles from which this is extracted were taken carefully and booked at once, and that in no case did I stretch a single hair's breadth, it will be owned that I have good grounds for sticking to my point. No, "Beta," I thank you for your letter and advice, but I shall not retire "gracefully;" when I do retire it will be because I am beaten, and then gracefulness will be out of the question.

I shall have more facts and figures to record which I know will not be received by everyone, and I own that some of them surprised myself, but that is no reason why I should withhold my notes. There will be ample opportunity for hundreds of persons during the next few months to test the veracity of my statements, and I can assure them that if they will take the pains to go into the matter deeply and carefully that they will find an inexhaustible fund of interest.

Now for the little bit of theory which has caused so much discussion. It is to the effect that the appearances noted above and recorded within inverted commas "indicate that the roots have commenced action, and that the leaves are no longer dependent on the stored-up food which was prepared last autumn and preserved in the stems for early use." True this is pure theory, in which, as far as I know, I am not supported to the full length by any professed physiologist; but, on the other hand has any learned physiologist made the Vine (which I hold to have an economy peculiar to itself) a special study?

The notes of observant cultivators who have recorded experiments during the discussion have partly supported my theory, and mere assertions, however numerous, without a shadow of proof to support them, carry no weight whatever.

Have none of your readers noticed the remarkable, almost magic-like change of colour which comes over the leaves of a Vine at the particular

stage referred to? I am acquainted with several persons who have watched for its appearance and could not detect it, but after it was once pointed out to them in even a single leaf they had no further difficulty. True, I cannot prove to the letter that this colouring is the result of the commencement of root-action; but as I have proved hundreds of times within the last twenty years that the colouring and root-growth commence exactly simultaneously, I may be pardoned for believing that there is some sort of connection between the two.

"Beta" proceeds: "Is he also prepared to adhere to his statement that root-action and root-extension are synonymous terms?" With the addition of the words used by me to qualify this sentence—viz., "for all practical purposes," I am prepared to adhere to it. I presume from "Beta's" very fair and sensible letter that he does not want to enter into any physiological hair-splitting on the wording of this sentence, but that he is only anxious to get at my meaning. It must be distinctly understood that mere absorption of water is not root-action, because the same thing goes on when cut flowers and cut stems of Vines are placed in water. I have, I believe, laboured as hard as anyone to show that water is continually being absorbed by plants during the winter in large quantities, and I take some credit to myself for assisting to bring the old-fashioned drying-and-resting theory and practice into disrepute, which was so common scarcely a dozen years ago. Water can, of course, be absorbed by any part of the root or any part of the stem placed in a moist medium; and if it is correct, as some authors assert, that some salts in solution are also taken up at the same time, that does not constitute root-action.

It would appear, however, from the following quotation that Dr. Masters thinks that only the *aqua pura* is so absorbed. He says in "Plant Life," page 21, "The soil, therefore, is not to be looked on as containing so much liquid food ready for instant use; that may be so as regards water, but for other substances the digestive action of the roots is necessary." As he, in common with all other modern authors to which I have access, maintains that plants having root hairs feed only by those hairs, and as I take it for granted that most people will agree that root hairs are only of annual duration, and produced only on young growths, it seems clear to me that no root-action (by which I mean feeding by means of the root) can take place before these root hairs are formed.—WILLIAM TAYLOR.

PERMIT me to inform "Credo" that when I spoke of there being no such thing as stored-up sap "in the sense Mr. Taylor states," I meant Vines did not store it "like an Onion," as explained at page 528; or to be plainer, I meant that Vines did not lay up a store of food "the previous autumn" or live upon that without any assistance from the roots, as I took Mr. Taylor up to mean at the beginning, and which declaration he has not withdrawn. If "Credo" understood me in any other sense I am sorry, but I thought that the whole discussion showed what I meant. That being so I have nothing to "withdraw." "Credo" will see that at the same page from which he quotes me I acknowledge Lindley's theory of storing up sap against the spring to be "the right one."

I notice "Credo" approaches the subject of the "elaborated sap" stores in a rather doubting manner this week. May I solicit a more precise and explicit reply to the last paragraph of my letter at page 528 in regard to the return of the elaborated sap to the leaves? Does the elaborated sap of 1883 return to the leaves in 1884 in any degree, and where is the proof of it? By elaborated sap I don't mean starch alone.—NON-BELIEVER.

FEELING somewhat indebted to Mr. Taylor for his teaching relative to Vines storing up sap and making considerable growth the following spring before root-growth commences, I take the present opportunity of thanking him. The readers of this Journal will no doubt remember the many able articles which have appeared in its columns on Vine-lifting, advising deferring the operation until growth had started. Well, as I wished to lift a whole house of Vines, sixty in number, all planted inside, I was led to consider very seriously what Mr. Taylor had advanced on the stored-up sap question. Lifting sixty Vines after pushing into growth seemed to me to be a very dangerous affair, as I wanted to pave the bottom of the border with tiles and Portland cement to prevent the Vine roots passing into the clay, as they had done, making it difficult to thoroughly ripen the fruit. All this work would occupy much time, and in the month of March, when we hope to have bright sun and a dry atmosphere, it would not be an easy matter to keep the roots moist during the operation, and there would be the danger of knocking off small shoots; but if, as Mr. Taylor says, Vines burst into top growth a considerable time before the roots start, why not lift the Vines soon after the foliage falls? Having confidence in Mr. Taylor's statements, I set to work soon after New Year's day, taking plenty of care and time, and secured splendid roots. The result was quite as I expected, for in March every one started growing as if they had not been moved until the shoots reached about 6 inches in length, when they suddenly stopped top growth for nearly a fortnight; but as soon as the roots took hold of the border they went ahead to my entire satisfaction, ripening about half a crop of good Grapes, proving to me at least that Mr. Taylor is in the main right. Having turned his advice to practical account I will again beg him to accept my thanks, and subscribe myself—A BELIEVER.

LIKE many more I have read with considerable interest the writings on this subject, and would gladly have continued to read them could those able contributors have seen their way to go further, or equally glad

to have seen it concluded in a satisfactory manner. It is to be hoped that it was nothing but a desire to benefit lookers-on practically which prompted "Non-Believer" to lodge his objection, for I fail to see what benefit can be derived by trying to expose the failings of any writer unless abundant proofs are brought forward.

I write to say only a few words on the subject, for speaking generally I am of opinion that although most gardeners who attain to positions of importance are very practical, yet we are not able to go far scientifically, and in that respect may expose ourselves to many lookers-on, who, though they could not pot, plant, or prune a Vine, could give us much information on other plants. It has often been my lot to practise where Vines have been very successfully treated, and have always been a close observer of their habits, and venture to think with our practical friend, Mr. Taylor, that the first growth produced on Vines, which of course varies considerably, is from stored-up sap, and to this I mainly attribute the weakening effects produced on some Vines which are forced compared with those which have been well ripened and prepared, and those allowed to start themselves. The latter in many cases have numbers of fibrous roots by the time growth commences, and sooner assist in developing the foliage, whereas those forced early drain the supply in store before root-growth begins; yet to suppose that the numerous fibrous roots which Vines in good condition have are doing nothing seems absurd. It has always been my impression that as the foliage matured and ripened for the fall of the leaf, so in proportion did the white or hair roots disappear and the hosts of fibres left naturally sufficient to keep up the supply already stored, or in other words to prevent it diminishing.

As some little confirmation of this view I will endeavour to relate a few instances which it was my not-very-pleasant lot to witness some years ago in the month of March, I having taken charge in the previous July. "Ah!" some may say, "all wrong the first year; always so with a new gardener." These Vines had been neglected for some years, and at certain times, perhaps, treated too liberally, been started at 75° to 80°, and expected to bloom at 55°, with roots inside and out, and were then about ten years old. Soon after taking charge the remainder of the crop was cut. The leaves were quite ripe and fast falling. The Vines were in due time pruned, and started about the middle of January, and owing to their extreme weakness at the top were tied straight up in their places. The buds began to move in about a fortnight, strongest at the bottom, and eventually the foliage expanded, but before it reached the measurement Mr. Taylor speaks of, one fine Sunday morning I was almost paralysed to notice several shoots on every Vine suspending from the spurs, for not many had grown enough to tie to the wires. As the next few days were dull they appeared to recover, but only to succumb again on the return of bright days. The only plan suggested was to cut the Vines down to within a couple of feet from the ground, in the hope that they might break and produce young canes. They did not bleed after amputation because the leaf-growth had used all the stored-up sap, and a close examination at the roots showed there were few or no fibres to supply more.

By the middle of May it was evident that no strong shoots were coming from these often-viewed remains, and the Vines were removed, when not a fibre could be found. Now I would ask anyone who disbelieves in stored-up sap, What did these Vines exist on even so far? I maintain they existed on the sap of the previous year, and when that was exhausted, and no fibrous roots to produce the necessary supply, the Vines died.—E. B.

ALTHOUGH Mr. Taylor may not be strictly accurate in the terms he has employed in the discussion on this interesting and important subject, there are probably not many readers who do not feel that he is substantially correct in the views he has enunciated. His statement that the laterals of Vines are dependent on the stored-up sap in the rods for support until the growths are 7 inches long and the leaves 4 or 5 inches in diameter cannot be maintained if applied to Vines generally, though his vigorous and well-matured canes may possess sufficient stored-up nutriment to enable them to do what he has stated, but not without a supply of moisture which the roots absorb from the soil, whether the cellular hairs are formed on them or not. In all probability he is right that these root hairs are not produced before the expansion of foliage, and that they wither with the fall of the leaves; and if that be so we have conclusive proof that the roots imbibe moisture independently of those annual appendages, in the excessive bleeding of many Vines before the unfolding of the smallest leaf. Whence comes this fluid if not from the soil? and yet the root-hairs then are "non-existent."

The truth about the matter appears to be this. Sap or watery fluid is not stored in Vines to any appreciable extent in winter, but is essentially the vehicle by which food is conveyed; the water, which composes at the least 90 per cent. of the volume of what is termed sap, being dispersed by transpiration, the nutritive matter being deposited in the stems as a food store for incipient growths. Vines, therefore, do not store up sap in winter of the nature of that which escapes from bleeding canes in the spring; but they store the food that the sap has conveyed and the foliage prepared, and this is diluted and rendered actively nutritious by further imbibition of water by the roots long before any leaves, and consequently, according to Mr. Taylor, long before any root hairs are formed. I shall be a little surprised if, on reflection, your correspondent seriously quarrels with this view of the case; and may almost venture to assume that if it had been so stated at the first "Non-Believer" would not have felt constrained to have seriously combated the statement.

As to the amount of matter stored, and to what length it will support growth, depends entirely on the strength of the Vines, the development

and activity of the foliage, and the absorption of food by the roots during the previous summer. In the case of hundreds of Vines the food store is not more than sufficient to support an inch of growth, while in hundreds of others there is sufficient to support growths of five times that length, for the simple reason that there is five times more nutritive matter deposited in strong matured Vines than in weak, ill-fed, and immature canes. This can, no doubt, be demonstrated any day by a competent microscopist. Thus both your correspondents may be wrong and both right on this point—one in saying the stored-up sap is only sufficient for fairly starting the growth of Vines, the other in asserting it will support the growths until they are several inches long.

The discussion, so far as it has gone, and perhaps it is not finished yet, has been without doubt instructive to many, and possibly even to the two able leaders in the controversy. It is true a little "feeling" has been exhibited in the matter, but not to an extent harmful to either; and in this matter it will be conceded by impartial observers that it is not easy to determine on which side the virtue of restraint has been the most prominently exhibited; but most experienced readers will agree that those who cultivate that virtue the most usually strengthen their position in any controversy.

If, perchance, any should fail to perceive the benefit of a discussion on the subject under notice, their obtuseness cannot but be regretted, as the question of storing-up nutriment by Vines has a direct, important, and practical bearing on the routine of successful Grape-production, as perhaps some competent "modern scribe"—if there be one left—will show on some future occasion.—*Not H., Notts.*

TREE CARNATIONS.

TREE Carnations are amongst the most useful plants we have for supplying cut blooms during the winter and spring months. They can also be had to bloom during the summer if required. But it is in the winter and spring that tree Carnations are the most useful, as during the months of July, August, and part of September the beautiful show varieties are in full beauty, and none need be short of choice cut blooms during those months if they have a stock of Carnations, Picotees, and Roses. Tree Carnation blooms are much appreciated for buttonholes and bouquets, as they last a long time when cut. They are also well adapted for the embellishment of the conservatory or dwelling house, as they continue unfolding for months.

If anyone wishes to raise a good stock, and has no plants to produce cuttings when the time for propagating arrives, he should procure a plant of each of the best varieties from a nurseryman who makes a speciality of them. If the plants are required for blooming during the winter the cuttings should be taken about the end of February or early in March and inserted in sandy soil, using well-drained pots. Place them in slight bottom heat, and top heat about 55°, and if kept moist they will soon form roots. Insert them singly in small 60-size pots in the same temperature until April, when they should be transferred into 48-size pots. The soil at this potting should consist of four parts loam, one part well-decayed manure, and one of sand, with a little charcoal broken up fine. Arrange them in a cold frame kept rather close until they are established and growing freely, when it should be well ventilated. In May place them in the open air, but not until the May frosts are over, so that the end of the month would be preferable. If large plants are required transfer the most forward into 7-inch pots, but keep them under cover until established.

Carnations require careful watering during growth; in fact, at all times. The following are a few good varieties:—*A. Alegatière* (red), *Miss Jolliffe* (pale pink), *The Queen* (white), *Proserpine* (scarlet), *Firefly* (scarlet), *Mrs. George Hawtry* (yellow), *La Belle* (white), and *Warrior* (scarlet).—*A. YOUNG.*

DEATH OF MR. THOMAS SPEED.

It is our painful duty to record the death of the above excellent gardener, whose name has long been familiar to most, if not all, of our readers, by the high position he occupied in the ducal establishment of Chatsworth. So painful has been his life of late years, and so melancholy its termination, that we are reluctant to dwell on one of the saddest events in the modern history of gardening. Left a widower with a large family, and an almost constant sufferer by an excruciating affliction, gout, he in a moment of temporary insanity shot himself on the 26th ult. At the inquest at which the above verdict was recorded medical evidence was adduced showing that the remedies that he had been employing for the alleviation of pain had a tendency to produce mental depression; and this appears to have been the fact, as was evident by his changed demeanour in transacting business with the steward, and by his conduct at home, as observed by his sister shortly before the occurrence of the dire event. Still there was no cause for alarm, nor any apprehensions that anything serious was about to happen. He retired after dinner as usual, a noise was heard, and an alarm raised, but he expired before the room was entered.

Previous to taking charge of the gardens at Chatsworth (in 1868) Mr. Speed was gardener to Sir Edward Walker, Berry Hill, Mansfield, Nottinghamshire, where he gained considerable fame as a Grape-grower during the years 1859 to 1868. He had also served some time at Belvoir Castle and Wrotham Park, where he laid the foundation of the practical knowledge he subsequently displayed. His earliest experience

of specimen-plant-growing was gained at The Pymmes, Edmonton, which about the years 1850 and 1851 was one of the most noted establishments in the neighbourhood of London.

Mr. Speed was born on December 19th, 1832, and he was therefore fifty-one years of age at the time of his death.

VEITCH'S IN 1853 AND 1883.

THIRTY years ago on a certain day in December I visited the Royal Exotic Nursery at Chelsea for the first time. I was then a mere youth, but certainly not less earnest in my search for excellence in the culture of plants than I am now, and was possibly more observant. The astonishment felt at the number of houses and great variety of plants made a deep and lasting impression. I was bewildered and perplexed, even almost daunted, as a sense of fear overcame me that I should never attain the knowledge that I felt requisite for a gardener—namely, that he should not only know the names of all the plants in that great collection, but be able to grow every plant satisfactorily. As time passed the majority of the plants and their culture became familiar to me, and some others that were not seen then but which are indispensable now. Hardwooded plants were then predominant, and the flowers of the period consisted mainly of Heaths, Epacris, Camellias, a few Acacias, with early Rhododendrons and Azaleas. There were also tall Poinsettias with gorgeous heads, not dwarf plants as now; Epiphyllums, very beautiful; Primulas in quantity of the old "mill sail" type, not the massive richly coloured forms of the present day; with some tall Cinerarias, made taller by forcing, and a remnant of Chrysanthemums, also a few of those rare and wonderful plants Orchids. The display was for the time considered imposing, and the astonishment of visitors was great to find so many "flowers in winter."

Last week I had the pleasure of inspecting the same nursery. As it was considered a "great place" in 1853, what can be said about it after its generation of steady growth? It is wonderful by its hundred houses and their intricate arrangement; threading our way amongst them is like traversing a maze. Numbers of these structures visitors never see, and certainly they could not be found without a guide. Yet even now the establishment is growing, and new erections are constantly in progress. Apart, then, from other nurseries, the increase of this one demonstrates in a striking manner the extraordinary expansion of public taste in the direction indicated. Plants and flowers by nearly all who can afford to have them would appear to be regarded as necessities of life, and those that are attractive during the winter season being particularly esteemed. Of these a feast is now to be seen at Chelsea.

In 1853 there were no Cyclamens, but these are splendid now—wonderful in vigour and variety. There were no winter Carnations then, but now a large structure is wholly occupied with thousands of flowering plants; and what were then little more than curiosities—Orchids, now constitute the most splendid feature of the establishment. The Odontoglossums are a sight, a great and beautiful sight, in themselves—a forest of arching spikes and richly spotted flowers, relieved by rich glossy foliage that the most advanced enthusiast of thirty years ago never dreamt of seeing in "dreary December." Then the *Cypripedium* arrest attention, as well they may, by their striking forms and remarkable combinations of colour. A mass of sixty flowers alone of the peerless *Spicerianum* on a batch of plants was something to see and remember, to say nothing of the many charming and interesting varieties that were born on the premises. Of *Cattleyas* there are but few flowering, yet these are gorgeous; but 400 uprising sheaths are premonitory of future magnificence, and there is a similar bright prospect of *Vandas*, *Aerides*, and *Saccolabiums*, which are bristling with spikes. Great white flowers of *Angraecum sesquipedale* are expanding, and very lovely is *Lælia albida*, with scores of other charming companions constitute a display of no little beauty even in dull December and January. Of special interest, however, amongst the Orchids, though now past its best, is the handsome hybrid *Cypripedium calurum*, which was honoured with a first-class certificate at the last meeting at Kensington. It is one of the popular *Sedeni* group, and possesses the valuable characters of vigorous growth and a floriferous habit, the neatly formed flowers with full rounded deep rose lip and pure white petals and sepals having a unique appearance. Much good service has been done in this section of *Cypripediums*, which are becoming great favourites with Orchid growers generally. Large numbers of seedling Orchids are constantly being raised in these nurseries; and though much patient waiting is required before the results can be seen, the long-continued efforts now bring annual additions to the already long list of beautiful hybrids that have been originated by the firm.

Nepenthes both in numbers and variety produce a spectacle altogether unique, thousands of pitchers hanging from the plants and rustling against each other by the slightest movement. The famed *N. Northiana* is developing, but nothing in the houses is more striking than the free and rich *N. Mastersiana*. This is indeed a grand acquisition, and not many plants more remarkable, distinct, and meritorious have emanated from this great plant emporium. Then there is the wonderful *N. bicalcarata* with its two strong and peculiar spurs at the mouth of the pitcher. *N. madagascariensis* is an exceedingly brightly coloured form of the *N. sanguinea* type, the pitchers about 7 inches long and very numerous, even on small plants, which, by the way, are dwarf and sturdy in habit as compared with many others of this family. *N. Morganii* is a very attractive hybrid, with green and red mottled pitchers gracefully formed and abundant. But the most extraordinary of all is the giant *N. Rajah*, which, though not yet represented by pitchers in their full proportions,

gives hopes by its rapid advancement of soon reaching gigantic dimensions. When fully developed these are 12 inches long and 6 inches in diameter, very hard and full. Many others could be enumerated, and the distinct *N. Veitchi* must by no means be omitted, as it takes the attention at once by its beautifully formed pale green pitchers. *N. sanguinea* is also one of the thoroughly useful sorts, bright in colour and very free.

Stove plants, including a wonderful collection of handsome *Crotons*, *Anthuriums*, *Alocasias*, and multitudes of other choice flowering and fine-leafed plants occupy dozens of houses, and would require a volume to enumerate all their attractions. The same might be said of the soft-wooded and greenhouse department, in which all the more popular and useful plants are grown by thousands.

A grand house of tree Carnations has been for some time a great feature amongst these, and proves how valuable such plants are at this time of the year. A perfect forest of flowers is borne on strong but compact plants, which continue for a long period in good condition, and yield a constant supply of fragrant and useful flowers during several of the dullest months of the year. The most notable of the varieties are *A. Alegatière*, dark scarlet; *Irma*, bright clear rose, very pretty; *La Favori*, rosy scarlet; *Falstaff*, a bright purple flake; *Laura*, salmon-pink; *The Bride*, pure white; *L'Hermine*, white; *Miss Joliffe*, pale pink; *Lucifer*, deep rich scarlet; and *Andalusia*, yellow. Conspicuous above all is, however, the superb new variety *Mrs. Keen*, which was recently shown at Kensington and honoured with a first-class certificate. This is an extremely handsome form, with massive flowers of an intensely deep rich velvety maroon colour, which in some lights appears almost black. It is of strong habit, very free, and is certainly one of the grandest of the type.

The plants mentioned are only a few of the many flowering in the nursery during the last week of 1883. How different from the appearance of the house during the corresponding week thirty years ago! The progress is astonishing, and progressive still.—A COUNTRYMAN.

WILTON HOUSE.

WHEN in Wiltshire last September I was urged by every gardener I met not to miss an opportunity of visiting Wilton; and one friend, who had evidently taken the measure of my capacity, had the honesty to remark, "You will learn something there." It is true he did not appear to fully comprehend the significance of his observation until a few minutes after its utterance, and would evidently have withdrawn it if he could. Yet it was true. There is scarcely a well-managed garden to be found where there is not something to be learned, and there are, I may venture to say, few men who could spend an evening in the well-appointed gardener's residence at Wilton without adding something to his store of knowledge. An outline sketch, therefore, of Wilton, its grounds and gardens, may not be unacceptable; and if the details be necessarily scant, this will afford an excuse for those who are able to do so to go and see for themselves—this fine old English home of an old and noble family being well worth a visit by archaeologists and gardeners.

Wilton, then, the ancestral seat of the Earl of Pembroke and Montgomery, is about three miles from Salisbury; but there is a railway station within a mile from the gardens, the route in summer being almost under a canopy of foliage, all the roads that intersect the demesne apparently being lined with grand timber, which, more than anything else, imparts dignity to the surroundings of the homes of the affluent. Wilton is one of the most ancient, as it is now undoubtedly one of the smallest of parliamentary boroughs, famed for its carpet manufacture, and perhaps largest annual sheep fairs in England. The *Wylie*, which runs through the grounds, is supposed to be the first river in which trout and grayling were established in England by the monks of old. Established they certainly are, and it is a pretty sight to see them in shoals gracefully gliding through its pellucid waters.

Another river, the *Nadder*, a more imposing stream, also intersects the pleasure grounds, and is spanned by an elegant bridge with an open Ionic colonnade, which forms a striking feature from the mansion as viewed through the branches of magnificent Cedars of Lebanon. These trees are the pride and glory of Wilton. There is quite a forest of them on the great lawn, four of them being regarded as among the oldest trees in the country, having been established 200 years. How majestic such specimens are with their firm trunks and rich deep solid green branches! Perhaps the oldest description of this tree is the best, that by the prophet Ezekiel:—"Behold . . . a Cedar in Lebanon, with fair branches, and of an high stature; and his top was among the thick boughs. His boughs were multiplied and his branches became long. The Fir trees were not like his boughs, nor the Chestnut trees like his branches; nor any tree in the Garden of God like unto Him in beauty." Such, then, are the Cedars at Wilton—none equals them in beauty.

The two rivers running through the grounds indicate that the position is not elevated, also that the land is fertile—natural advantages that never appear to have been overlooked by the shrewd old monks in the selection of sites for abbeys and monasteries. Wilton at a very remote period was the seat of a monastery, an oratory being first erected by *Wulstan*, Earl of Wiltshire, whose widow succeeded in raising it into a priory; and King Alfred, after his defeat of the Danes, is said to have erected a nunnery and transferred it to the sisters of the priory. Here the Queen of Edward the Confessor was educated, and *Maud*, Queen of Henry I., passed many of her early days. It was taken possession of by King Stephen 740 years ago, but he was driven out by the army of the Empress *Matilda*, by whom it was destroyed by fire; it was eventually

rebuilt. In 1579 it was visited by Queen Elizabeth, and a quarter of a century afterwards was for some time the residence of the Court. That is, in brief, what history records about the ancient manor of Wilton. At the dissolution Wilton Abbey was granted to Sir William Herbert, afterwards Earl of Pembroke, who on its site commenced the erection of the present edifice from designs by *Holbien* and *Inigo Jones*.

It is a massive pile of great magnitude. The exterior is not remarkable for architectural embellishment, but the interior is exceedingly rich in ancient and modern statuary and rare old paintings—notably the *Vandyke room*—and with plants and flowers, of which Lady Pembroke is an ardent admirer, tastefully disposed in every available position, an effect is produced such as is rarely seen. The plant-furnishing is a work of magnitude at Wilton, and right well it is done. The views from the windows over 65 acres of lawn well furnished but not crowded with grand deciduous trees and evergreens, with the river glistening down the valley, leading the eye to the distant and lofty spire of Salisbury Cathedral on the one hand, and the flower garden and isolated temples beyond on the other, are of no ordinary character. The flower garden is what may be termed a small corner masked on all sides by evergreens.—a bright spot in a great framework of green. It is pleasingly diversified with shrubs and vases, and is gay without being severely formal by the disposition of the plants in spring and summer, spring gardening being carried out on an extensive scale.

To attempt an enumeration of the trees and shrubs in these extensive pleasure grounds would simply result in an imperfect catalogue; therefore only just one tree will be noticed—an old and lofty Horse Chestnut that made a mistake a number of years ago and has never been able to rectify it—namely, it partially casts its leaves in summer instead of in autumn, makes fresh growth, and flowers in October instead of in spring! This is its invariable habit, its neighbours around it being content to progress in the orthodox way. Between the mansion and kitchen garden an antique building half hidden among the trees arrests attention. Ancient it undoubtedly is, and picturesque, yet useful, for there the children of workmen on the estate are clothed and educated by Lady Pembroke, who further seeks to obtain for them good appointments in life. It is truly "noble to be good."

The kitchen garden is about a quarter of a mile north of the mansion, the *Wylie* forming the southern boundary of the department under notice. The stream is crossed by bridges, and in one part by large stepping stones which rise a few inches above the water. These stones have been used from time immemorial, presumably from the "days of the Romans," and on that account are not likely to be supplanted by a modern bridge. The stream, which is somewhat rapid, has been turned to excellent account by Mr. Challis, as by holding up the water at a convenient point, making a water wheel and fixing pumps, water is forced all over the garden and houses at the least possible outlay, and can be brought to bear in washing wall trees and watering crops through moveable tubing. This is a very complete arrangement, and an ever-present supply of water is insured at a trifling cost considering the extent of ground through which the pipes are conducted.

The most commanding feature of this garden is the great collection of fruit trees, which, however, do not impress so much by their numbers as their splendid condition. Pyramid Pears especially are magnificent, the main avenue being highly imposing. They are not pigmy trees, not a few of them being capable of bearing fruit by the bushel. They range from 15 to 20 feet high, are perfectly furnished to the ground, and as symmetrical as the most ideal Conifer that can be imagined. They are systematically and skilfully pruned, and periodically lifted, or they could not be maintained in their present condition. In some soil fruit trees may be planted and afterwards almost let alone, with the assurance that they will make handsome specimens and in favourable seasons afford bountiful crops; but this natural system would fail utterly at Wilton, where the soil is only slightly above the water, as indicated by the streams. In such positions it is imperative that the roots of the trees be kept near the surface, and although summer mulching be practised, occasional lifting also becomes a necessity. This was demonstrated by several trees that were "waiting their turn" to be taken up and replanted. Immediately roots find their way into the wet subsoil the growths assume a totally different character. The leaves have a yellowish green hue and are thin in texture, while the growth is also thin, long-jointed, destitute of tissue, and essentially unfruitful. It is a great work keeping such a number of trees in order under these circumstances, and it is not always possible to attend to each specimen with the promptitude that is desirable; yet it is evident that none of them have to wait long for the attention that they need, and the result is as grand a lot of fruit trees as a gardener could reasonably expect to see under the most favourable conditions of site and soil.

Wall trees need similar care or they would not long remain in a satisfactory state. All the borders are aerated by a series of drains and vertical pipes protruding through the soil. Mr. Taylor, in his excellent work "*Vines at Longleat*," expresses a doubt that an arrangement of this kind conduces to the aëration of the soil, and rather suggests that it tends to the circulation of air in large streams through the pipes and from the soil. In a well-constructed, drained, and sufficiently porous Vine border air will always follow the water that is given, and the borders well managed remain sweet; but it is not so when, as at Wilton, the soil may be said to rest on the water. Artificial aid is then necessary, and that it works beneficially is evident by the improvement of those trees to which the system has been applied, and hence it is being extended as the replanting is proceeded with. Thus hardy fruit culture at Wilton is work requiring the exercise of much thought, sound judgment, and

judicious action; the trees indeed have to be regarded as so many specimen plants, and watched and treated accordingly. That they receive this care their condition testifies, and the success achieved becomes the greater since it is attained under the obstacles alluded to. Difficulties are opportunities that the man of skill and mettle covets, and to surmount or remove them is his greatest reward.

But there is a bird difficulty at Wilton as in other places, and if the spring frosts, which are very destructive in the damp valley, did not destroy the blossoms of Cherry trees there was yet no fruit for the noble owner. Both frost and birds have been successfully combated by one simple operation and inexpensive contrivance. Over a long row of pyramid Cherries a light framework of 2-inch deal battens has been erected. Posts are fixed at intervals above each side of the row and well beyond the branches of the trees. These uprights are 8 or 9 feet apart and slant inwards, meeting at the top within about 3 feet. This space is bridged with glass—just a double glass coping, formed by one row of large panes along each side fixed on the safe, simple, and excellent plan devised by Mr. Challis for glazing Peach houses and vineries. The upright posts are stayed by two rows of cross-bars, and the whole made rigid. The framework is then covered with small-meshed woollen netting. The result is the glass coping throws

shovelful or two of fresh soil, and thus the supply is maintained without much more trouble than is involved in growing Cauliflowers, while a fruit is usually ready when it is wanted. This may be termed Pine-growing-made-easy, and healthy plants and excellent fruit are produced. The next range is a three-quarter span about 10 feet wide, the path being under the ridge, a bed on one side for Melons, with hot-water pipes running round the top of it, and shelves on the other side for plants, such as Strawberries and Kidney Beans—one of the most useful and handy of structures for various purposes. In the other divisions are Vines grown on the extension system, yet the roots are confined to a border 3 feet wide and less in depth. Nothing could be more satisfactory, good crops of excellent Grapes being unfailingly produced, a variety known as Keynes' Muscat being highly prized. Particulars of the grand Peach range and a striking example of "growing Vines without soil" must be deferred till a future issue.—J. WRIGHT.

KEW GARDENS—YOUNG MEN'S ROOMS.

I WAS much pleased with the suggestions by "Veritas" in his "Notes at Kew," regarding the desirability of a suitable structure wherewith to display the beauties of the large number of half-hardy plants that are

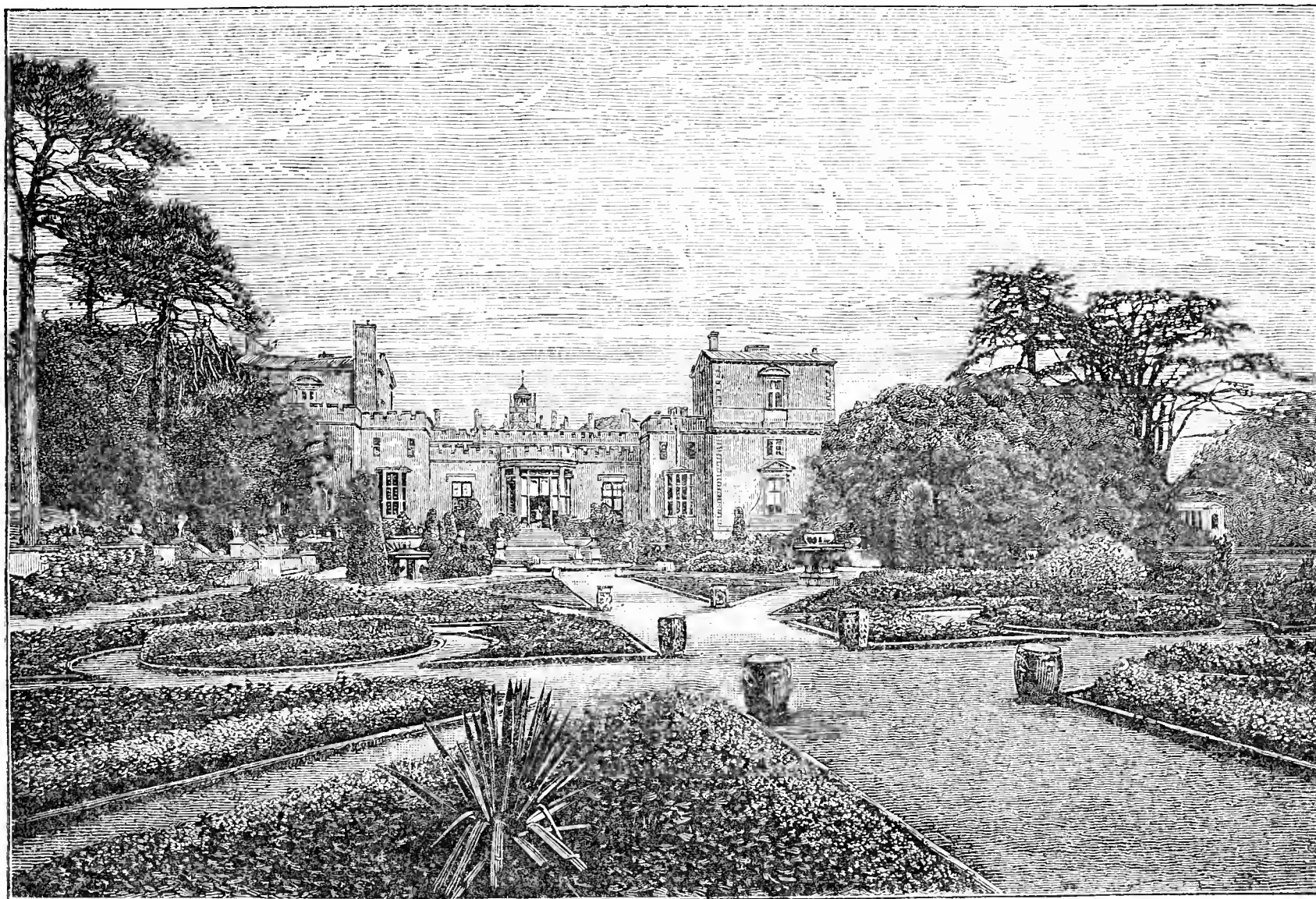


FIG. 2.—WILTON HOUSE.

off heavy autumn rains, and the wood made is sturdy, matures, and is fruitful; shelter is also afforded from spring frosts, and the blossom sets, while the netted sides exclude the voracious birds. The value of the first crop of fruit exceeded the entire cost of this efficient protector, and it will answer its useful purpose for years. As a rule pyramid Cherry trees are comparatively valueless as dotted about in gardens, as the birds gather the fruit; but planted in a row and protected as at Wilton, disappointment ends, and the pleasure of gathering this much-esteemed fruit in abundance is enjoyed by the cultivator.

The "glass department" is extensive, the houses being admirably adapted for their purpose, and well arranged. They were designed by and erected under Mr. Challis's supervision, and although the system is not so complete as was originally intended, in consequence of the death of Lord Herbert, who was a great improver, the large portion completed has been done well. There is one relic of the past—a quaint old Peach house, with grand old octogenarian, perhaps centenarian, trees, but with this exception the structures are modern. Five ranges of pits and houses, most of them in three divisions, each 100 feet long, are most useful. The front range is a low narrow span-roofed pit with moveable lights, in which Pines are planted. When a fruit is cut a sucker is inserted in a

cultivated in pots and stowed away in pits and frames in the private departments. The hundreds of floral gems of a tender character that unfold their flowers in obscurity is, to my mind, lamentable, as 99 per cent. of ordinary visitors never see them. That a visitor has only to ask where particular plants are and he will be directed to them I grant, but thousands do not know for what to inquire, and these it is desirable to educate horticulturally. What better way is there of doing such a good work than by bringing together and displaying to advantage some of the neglected, and many of the comparatively unknown members of this class for plants?

In regard to the proposed accommodation for the young gardeners I think the authorities gave a similar suggestion consideration some years ago, and concluded that it was impracticable or undesirable, or both, from their point of view. I am cognisant of some of the most serious objections used against the scheme, and I frankly admit their importance, but I consider they are not insurmountable, and if there were the same desire to promote the comfort of the young men employed in the gardens as to advance other alterations and improvements I feel sure all obstacles would have been overcome long ere this. It is not absolutely necessary that the bothy or bothies should be in the gardens, but of course the

erection of a suitable building outside and within reasonable distance of the workmen's entrance would involve a greater outlay. That it is desirable to provide better lodgings for the young men there can be no question, nor do I think there is any doubt that British taxpayers would be willing to provide the few hundreds of pounds that would be required to carry out the scheme if the facts of the case were laid before them.

The Journal is therefore doing a good work in ventilating the subject, and I trust its columns will be open to a free discussion thereon until either the authorities have shown the impracticability of the suggestion or it has been carried to a successful issue. I endorse all that is stated by "Veritas," "Ex-Kewite," and "Experience," and knowing how powerless the gardeners at Kew are to help themselves it is a great pleasure to see their interests are not unobserved or uncared for by the horticultural press.—J. U. S.

In discussing a question of so much importance as the suggestion that the young gardeners employed at Kew should be provided with residences situated on the establishment, and under the control of the responsible head of the gardens, it is necessary that whatever reasons are urged in favour of such a proposal should be deduced from a careful consideration of the facts of the case, and with a due regard to the nature and object of the establishment itself so far as the young employes are concerned. That the subject is worthy of notice no one who has read what has already been stated upon it will be willing to deny. My knowledge of the establishment at Kew is, however, sufficient to warrant the opinion that the practicability of the proposed residences for young men is open to serious doubt. Whether what is done in many private establishments may be reasonably made use of as an argument in favour of the adoption of similar provisions for the young men at Kew, or whether the whole subject should be discussed on its own merits, is perhaps an open question, though in my opinion the two cases are not exactly parallel. So far as I understand the arrangements made for the quartering of the young men employed in large private gardens, bothies are provided at least as much for the advantage of the employer as they are for the employes. Most of such gardens are situated generally in the country, often a long way from villages or any houses where suitable and convenient lodgings for the gardeners could be found, so that to provide residences is an absolute necessity if a number of men are employed. Suitable quarters are always one of the first considerations with men employed away in the country.

In such gardens the stoking has to be performed by the under gardeners, which necessitates their being near at hand until midnight for at least a portion of the year. Again, the number of resident young gardeners seldom exceeds half a dozen, of which number perhaps two are foremen, holding responsible and semi-permanent positions, and they are supposed to exercise a proper influence over their companions indoors. These are but a few of the advantages of the bothy system in large private establishments.

In large public gardens, however, the case is totally different, none of the above reasons holding good when applied to their consideration. There the stoking is performed by men employed specially for such work; suitable lodgings are always within easy reach of the place; and the foremen are generally married men, or at least in a position to live in better circumstances than bothy life usually admits of. There is another important consideration in connection with the bothy question as applied to large public establishments—it has a serious moral side. To anyone acquainted with what generally happens when a large number of young, often inexperienced, men are housed together, if the supervision of such is not strict, and a severe régime enforced, the serious aspect such a question wears from a moral standpoint will easily suggest itself in the case now under discussion.

A year or so ago I had a conversation with a leading London nurseryman on the subject of providing comfortable quarters for young gardeners, where they could be looked after, and studious habits encouraged; and I was then informed that it had already been tried and had failed completely. One of our most eminent London nurserymen did undertake such a beneficent work, but in spite of the greatest liberality and care on his part the abuses of the bothy system when applied to a large number of young men were so great as to compel its abandonment. I suggested stringent rules and proper supervision, but was reminded that even young English gardeners loved freedom, and such rules would either drive good workmen away or result in much unpleasantness. Certainly this evidence went against any plan such as that suggested; and although we are too often made acquainted with cases of young raw men coming to London with the best intentions and being led astray and ruined by the vices of their surroundings, the proposal to undertake the care and control of fifty young men, who are not willing to be slaves to a strict discipline if they can avoid it, is a heavier task and a greater responsibility than most men are willing to deal with. So much for the bothy system.

Turning to Kew and the rules that govern the employment of young men, and the provisions that are made for their instruction and comfort, it appears to me that as compared with similar men in other large establishments they have little to complain of. The young men at Kew are supposed to have passed through the elementary stages of their profession before coming there to obtain an insight into the more scientific branches of horticulture. They are moved from one department to another, which enables them to gain a wide knowledge of plants, lectures on botany and allied science are given, and a good library is provided for their use in the evenings. The time they are supposed to stay at Kew is not more than a year. From this it will be seen that at some

sacrifice to the establishment itself Kew is made available to the young gardeners of this country for purely educational purposes; for the frequent changing from one house to another is not considered advantageous to the plant collections.

Now, whether rooms could be provided, or whether they would be considered advantageous to young men, even by the men themselves, is a doubtful question. It would seem that, apart from cost, private lodgings are more conducive to studious habits in a place like Kew, with all the advantages of the establishment itself, than any bothy system could be. Even if bothies were decided upon, whether the authorities would be willing to undertake the serious responsibility attached to the bothy system on a large scale seems highly improbable. The question of wages is one that concerns labour, and when compared with other large establishments Kew stands favourably.

The statements that have been made with regard to meal times are hardly worthy of notice here. Three-quarters of an hour are allowed for breakfast, and an hour for dinner, which are quite sufficient time to enable the men to walk to their lodgings, if in Kew, and get their meals comfortably. If anyone ran twenty minutes each way he could not have lived in Kew, or must have run a long way "round."—LIBERTAS.

THE letters that have appeared in reference to this subject have so far been favourable to the scheme, with the exception of that from "A Boss" in the last issue of the Journal (page 547), who seems to regard the idea as undesirable. As, however, he is evidently unacquainted with the peculiar disadvantages attending the present system of lodging the young men at Kew, I will extend my previous remarks in explanation of the case, and leave your correspondent and others to judge whether there "is anything to complain about."

Without attempting to raise a sensational discussion, such as the "Bitter Cry of Ill-used Gardeners," or anything of the kind, the facts are briefly as follows. In the first place the lodgings are mostly too distant from the work, and from twenty minutes to half an hour or more of the time devoted to breakfast and dinner is occupied in "running" to and from the houses. This in itself is a great disadvantage, and one that can only perhaps be understood by those who have experienced the evils produced by it. Then as regards the lodgings themselves, if they were really "quiet and private," as "A Boss" supposes them to be, study could undoubtedly be more readily followed up than in "a noisy barrack room." Unfortunately, however, the peaceful quietude that would be so conducive to study exists only in the imagination. For example, one friend of mine had the misfortune to be located with a family including seven young children, who "breakfasted" and "dined" at the same time as himself, and during the evening and often until early morning some were usually in various stages of trouble, which they expressed in the customary harmonious infantile manner. The progress this young man made with his studies in his "quiet private lodging" was astonishing; happily, however, he secured a fresh location before he was past recovery.

Another instance. A young man of studious habits, one who had raised himself high in the estimation of his superiors, occupied a room in the upper portion of a house, and immediately below that was another lodger who was afflicted with a mania for concertina playing, but whose taste for music was undeveloped. The nightly agonies of the would-be student can probably be better imagined than described. A creaking mangle in frequent use in an adjoining room "A Boss" might also consider beneficial, but what would he say to the mental effects produced by a piano under the tender hands of a persevering young lady in her teens? An intimate friend who enjoyed a strong mind and a robust constitution endured this for several months, but he mentions the matter with a shudder. These are only a few instances which I could multiply by tens, for several of the houses where the young men lodge are the conventional Kew "Tea Houses," and throughout the summer months the visitors occupy so much of the proprietor's time that the "lodgers" have in a great measure to look out for themselves, and the noise and bustle continue until late in the evening.

But a more important matter in a sanitary point of view is the condition of the rooms, and it is only fair to say that generally they are clean. There are, however, serious exceptions, and one row of houses has long since gained a *sobriquet* indicative of the particular kind of insect life most abundant there. In another row the lower apartments of the houses are below the level of the river at flood tides, and in past years have been frequently swamped. Some of these are little better than cellars. In one, which was occupied by an excellent young man (now head gardener to an English nobleman), boots, boxes, and everything placed on the floor or in the cupboard became in a day or two covered with a thick mould. What visions of rheumatism and allied ills does this bring before us?

Then as to the expense, it would be quite within the mark to say that as a rule these lodgers have to pay 10 per cent. more than the average London prices for provisions, and this, be it remembered, out of 16s. per week. I should not like to make a general charge against the landladies, because a few are, I believe, conscientious, but the majority seem to regard the young gardeners who go to Kew as possessing an unlimited supply of money, which it is necessary they should assist in dispersing. Few leave Kew much better off pecuniarily than they entered it, and in my early days I have saved more in a bothy at 12s. a week in three months than I could do at Kew in eighteen months. It is true that most of those gardeners who enter Kew do so for the sake of the special knowledge to be gained there, but it is hardly in accordance with the traditions

of a great and wealthy empire that its noblest garden should be maintained in order at the expense of those employed to do it.

"A noisy barrack room" "A Boss" thinks would be unsuitable to study. Undoubtedly it would, but who has proposed a "barrack room?" The reading-room at present devoted to the purpose of study is amply sufficient, and the order which prevails there is the best example of how young gardeners can associate together with one object in view without indulging in horseplay and larking. At the room in question there is no one in authority to maintain order, though the young men take it in turn week about as clerk, whose duty consists in opening the room, admitting the men, and seeing that the books are all returned to their proper places each night. Yet with all this freedom the men show their good sense and appreciation of the privilege accorded them by preserving the most exemplary order. Should any employé break the rules in this respect he would be reported to the Curator, and if the offence were repeated he would be in danger of being discharged. This is all the check imposed, but it is amply sufficient.

The whole routine of duties and studies at Kew is an excellent training for any young man, and scores who now fill responsible positions look back with satisfaction on that part of their experience. Strict punctuality, civility, and attention to duties are enforced, and in addition all are expected to take advantage of the opportunities afforded of extending their knowledge of plants and plant life by attending the reading-room frequently and the numerous courses of lectures, the notes taken at the latter having to be written out and submitted to the lecturers for approval and comment. The authorities are thus enabled to see at once whether the young men comply with their requirements. If they do not they spend their time at Kew to little purpose, for their testimonials will bear the record that they "have not availed themselves of the opportunities afforded them."

Study is therefore in a measure compulsory, and it appears to me that the least which can be done is to assist in rendering it as little taxing to body and mind as possible. Convenient residence in the gardens near to their work, the lectures, and the reading-room, with better quality food, better cooked, and at a more moderate price, would be a most important assistance to the young men in every way. The primary cost would be small as a national work, and it could be subsequently made entirely self-supporting.

The whole question turns upon two points: First, is the accommodation advocated needed? and secondly, is the scheme practicable? The evidence already tendered has some bearing on the first, and if the men at present employed could proclaim their desires uninfluenced by the officials, nine-tenths, I am convinced, would be in favour of it. Those who would object to the few but beneficial restraints that would be necessarily imposed upon them are precisely those who would most need curbing. Presuming, therefore, that some improvement is requisite, the practicability of such a plan next demands consideration. What objection have the authorities at Kew or others to offer under this head? —VERITAS.

STEVIAS.

In these days of single Dahlias and glaring giant Sunflowers we are apt to lose sight of many old garden friends, and plants cultivated with pride previous to the mania are either left to themselves or are lost to cultivation altogether. That general cultivators soon lose an interest in plants that require a little extra attention is very obvious from their scarcity in gardens. Among the neglected plants no prettier genus exists than *Stevias*, a small genus of Mexican plants nearly related to *Eupatoriums*, although of very superior horticultural value. In point of beauty and compact habit they compare very favourably with many of the *Bouvardias*, and could be easily utilised for the same purpose—viz., greenhouse decoration at Christmas. It is true that they will not stand over a severe winter unless in a very dry and sheltered situation, but an ordinary winter does them no perceptible harm, even without covering.

The ordinary method of cultivation recommended is to grow them in large pots as specimen plants, plunge them out where desired in the spring, lifting them again in the autumn and wintering them in cool frames; and to most gardeners, whose time is a matter of consideration, the plan recommended above is no doubt in many ways very objectionable, and the result, to them, barely worth the trouble. A much easier and more satisfactory method is to treat them as ordinary annuals, simply sowing the seeds, which they bear profusely in spring, and when large enough for handling prick them into small thumb pots or pans, as recommended for tender annuals, and from thence to the beds or borders about the latter end of April.

Among the best for cultivating in this way are *Stevia amabilis* and *S. Plummeræ*, both rose-coloured; *S. ovata* and *S. eupatoria* both white. —D., *Stirling*.

PROPAGATION BY CUTTINGS.

In all private establishments a number of plants must of necessity be raised each year from cuttings, and this is undoubtedly one of the most important operations in gardening, yet it is very often carried out in a manner evidencing little knowledge of the work. So long as the cuttings strike it is considered satisfactory, no regard being had to the growth after striking, which in a great measure influences the plant, a healthy and vigorous plant rarely being the outcome of a weakly and indifferently rooted cutting.

Softwooded plants are usually those most operated with in gardens, and these are so readily increased by that means that little difficulty is experienced in keeping up the necessary stock for bedding-out or growing into specimens: yet it must have been proved to demonstration that a stout sturdy cutting taken off at the right time, neither too soft nor too hard, will be in a condition to emit roots freely and grow freely after it has become rooted, providing of course it receives ordinary care; whilst a weakly cutting, which from its hard growth has the wood much more solidified, and as a result roots tardily, is a long time starting into growth. It is extremely difficult, however, to convey an idea as to the exact solidity of the wood cuttings should have when detached. Many plants are exceptional as to the state the wood should be in when the cuttings are taken. As a rule the cuttings of most softwooded plants are in proper condition when the wood is fully a quarter and not more than half ripe; but much depends on the quickness the growths are made, as growths that are naturally made quickly will form roots from younger wood. For instance, cuttings of bedding *Pelargoniums*, *Verbenas*, *Lobelias*, *Salvias*, and *Ageratums*, which as stock plants are placed in heat in spring, will root more quickly than cuttings taken from outdoor plants in September, although the wood may then be apparently in the same condition as that of the cuttings from the heat-excited plants in spring, and the more succulent the cutting the less moisture it will need to insure its striking. It might be supposed that being softer it would need more moisture than a cutting with the wood in a much firmer condition. The contrary is, however, fact. The soft cutting is more capable of taking up moisture by the softer condition of the wood inserted, and that above has its pores more open, and takes in moisture more quickly, hence a moderate degree of moisture is only needed for such cuttings. A soft cutting will also need less shading than the firm, and as it will elaborate more quickly by its exposed surface an impetus will be given the descending current, and a callus with roots will be more quickly formed. The firm or hard cutting cannot withstand sun—it flags directly, and is soon beyond recovery. Its wood is hard, its pores are almost closed, and its channels narrow; it cannot take up moisture by the part inserted, and its leaves are so mature as not to be much refreshed by moisture, in consequence of which it needs more shade, more moisture, is slower in rooting, and seldom makes a good plant.

In propagating softwooded plants, which are by far the greatest number propagated in gardens, the cuttings are usually taken from plants in a growing state, and as a result a check of the severest kind is or would be given were they not placed under conditions best calculated to induce the formation of roots. This is most generally sought to be effected in the shortest time by placing the cuttings in bottom heat, and which of course must be suitable to the temperature the plant requires to grow in; and this ought not to be more excessive than that the plant needs as a maximum, whilst the top heat should be very little if any higher than that the plant is grown in from which the cuttings are taken. Anything much beyond the maximum of heat the plant needs to grow in as bottom heat is very injurious, especially if it be accompanied by corresponding top heat, which induces top growth, whereas every means should be taken to repress it, as growth in the cuttings without the formation of roots is most injurious. When roots are formed the cuttings will start into healthy growth, and need but a little hardening-off as compared with those struck in a much higher temperature, and as a consequence making much healthier and better-shaped specimens.

Then success in cutting-striking also depends on preventing evaporation from the leaves and stems, so as to prevent flagging and exhaustion. This is effected by means of a glass covering—bell-glass or handlight, frame, or propagating house, or a frame within that or some other house which prevents the moisture evaporating. Upon this moisture depends very much the success of the work. If the atmosphere be too moist the cuttings will in all probability damp, and if too dry they will flag. Without entering into the question of leaves absorbing moisture, it will suffice for all practical purposes to state that it is absolutely essential that the cuttings do not flag under any but very powerful sun, for if they flag on a dull day it is obvious the atmosphere about the cuttings is too dry, or the soil in which they are inserted lacks the needful moisture. In the case of very soft cuttings a slight flagging for a few hours when the sun is very bright will not do any harm, as it will check the tendency to leaf-growth before roots are formed, but it must not be allowed to be so excessive as to cause the foliage to dry. This condition of the cuttings we often see in the propagation of bedding *Pelargoniums* out of doors. The cuttings flag by day and recover at night, and everybody knows the result is more satisfactory than if the weather prove dull and wet. I am convinced that a certain amount of evaporation from the leaves or stems of the cuttings for a few hours each day is essential to a satisfactory result, and this, I think, takes place more or less under the influence of light, whether we admit air to accelerate evaporation or not, and there certainly is no harm in giving air providing it does

not lower the temperature beyond a safe degree, nor dry the atmosphere so as to cause the foliage to flag. It may cause the cuttings to be a little longer in producing top growth—an evident advantage, as this can be of no value until roots are present to support it. In fact, the rooting of cuttings depends on extremes in heat, moisture, and light being avoided.

There is great difference between making a cutting of a plant to root and growing a plant from a cutting into a specimen. If top growth takes place before the cutting has rooted it will never make a plant. Take, for instance, a Pelargonium, Fuchsia, or any other common plant; strike a batch warm, close, and dark. They will root most quickly no doubt, but they will be lank, tender, and need coddling to bring them round, during which they will have lost all that forms the nucleus of a well-formed healthy specimen. Strike another batch in the same condition as regards the cuttings, and give them no more top heat than is necessary to grow the plants, with a slight bottom heat to accelerate rooting, with moisture sufficient only to keep them fresh, and as much light as they will bear without flagging. They will remain stationary until roots are formed, and then grow quickly. Compare the results. Or take a more familiar example in the Chrysanthemum. Insert cuttings in December, place them in a position that top growth will not take place whilst roots are forming; and strike others in heat so that whilst roots are being made top growth has taken place to the extent of several inches. Take note of the results at blooming time, but there will be no need, as the difference will be marked all through growth. Plants that are to be grown into specimens should never be selected from those that have made considerable length of stem whilst roots are being formed, as it is a consequence of insufficient light, and growth made whilst this is excluded never after become sufficiently solidified to make good plants or flower satisfactorily. Much of the lank growth in cuttings would be obviated were the cuttings kept near to the glass. Light solidifies the growth. Shade is of course necessary with most plants whilst striking, but the less they have the sturdier will be the resulting plants.—G. ABBEY.

(To be continued.)

EUCCHARIS AMAZONICA.

NOT having for some days noticed your Stamford correspondent's request on page 508 respecting the above prevented me sending you an earlier reply. The compost we grow our Eucharis in is made up of about equal parts of peat and loam, with a small admixture of silver sand. The pots are well drained, as the plants in the growing season require water very frequently. We give them plenty of heat and abundant moisture over the foliage as well as at the roots. Before the plants can be induced to flower they must make a good and strong growth, after which there should be a gradual rest for a month or sometimes even more, when they should be kept dry and rather cool. I can scarcely state a hard-and-fast line. It is possible, and perhaps not an infrequent occurrence with persons who cultivate this, to have the plants in fine condition as regards health and vigour, but for want of duly resting or ripening the growth they do not flower freely.

About the month of May last I rested a large plant for about six weeks in a cold pit under glass. It was then put back into the plant stove, giving it plenty of tepid water at the roots as well as over the foliage. We wanted it for our local flower show about the middle of August, and it just came in in time. It was about a fortnight from the time that the flower spikes appeared until the plant was in full flower. There were thirty-five spikes upon it. After the plant was taken home it was placed in the conservatory till the flowers were gone. It remained in the conservatory longer than we thought it should have done before it was taken back to the stove again, as it lost a few of its leaves. But this second rest has caused other bulbs to flower, and just now there are twenty flower spikes again upon it. In a large pot of Eucharis there are always bulbs of various stages of development in it. The first and most important point is to get a good growth; then by forced rests they can be brought into flower at various times, though I have found that the tendency is for them to flower in autumn.—ROBERT MACKELLAR.

SPECIAL SOCIETIES.

REFERRING to the remarks of "X." at page 549 on the Pelargonium Society, it was first promoted and afterwards nurtured by the late Dr. Denny. Whether it was or was not really needed I will not stay to inquire, but there is no doubt that it has done a useful work and been the means of giving a great impetus to the culture of the Pelargonium. It was because of the good it was doing that I became a yearly subscriber to it, without any intention of becoming an exhibitor. The prizes were open to all the members under certain regulations, and but for the few, say three or four large exhibitors, the exhibitions as such would have been failures. The remark about prizetaking being almost a monopoly does not apply any more to the exhibitions of the Pelargonium Society than it does to those of the Royal Botanic, Royal Horticultural, or Crystal Palace Societies.

I am afraid it is "X." that would create a monopoly. It seems that

one or two leading growers sweep off all the leading prizes of the National Auricula, Carnation and Picotee Societies. "X." wants some regulation to prevent this. Pray what is that but creating a monopoly? Certain "daring spirits" have taken the highest prizes for a number of years. Say two or three individuals have done this. Of course it is very annoying to those who have only fourth, fifth, or sixth-rate plants. I mention these lowest scales, for the second and third-rate men make no complaint as a rule. How is it that all this complaint about the "big guns taking all the prizes" is only made about the special shows? Let us take the Royal Botanic Society for instance. I could point to classes in that Society's schedule where the same exhibitor has taken the first prizes in the same classes for at least a dozen years in succession. The only way to prevent such a glaring offence in future would be to say to such an exhibitor, "Friend, we have had enough of you and your exhibits; you had better keep them at home for the future." It would be a suicidal thing for any society to do this, nor did I ever hear of it being done; but it would let second-rate productions take a first prize if the judges thought them good enough.

Lest the remarks of "X." would lead some people to believe that the schedules of the National Auricula, Carnation, and Picotee Societies are arranged in the interests of one or two individuals, I enclose you schedules in order that you might see it is not so. The ordinary scale of prizes is first, second, and third, whereas the National Societies give six prizes in each class, and in that of the single specimens as many as eight prizes are given in one class. Further, in order to keep the great growers from competing against the smaller ones, exhibitors in classes A and B cannot compete in C and D. Perhaps you will hand the schedules to "X." to see if he can suggest any amendment. I do not know what else can be done, unless we tell the successful growers to keep their plants at home, and thus preserve a monopoly for inferior productions.—J. DOUGLAS, *Great Gearys, Ilford*.

[The schedules have been sent to our correspondent "X." as requested.]

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Loder, Edmund Giles, Floore, Weedon, Northamptonshire.	Smec, A. H., The Grange, Wallington, Surrey.
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Bunyard, George, The Old Nurseries, Maidstone.	Muddell, J. C., The Gardens, Moor Park, Rickmansworth, Herts.
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A. F. Barron, Royal Horticultural Society, Chiswick, W.

Ballantine, H., The Dell Gardens, Egham.
 Dominy, John, 11, Tadema Road, Chelsea, S.W.
 Ebbage, H., The Hall, Stamford Hill, W.
 Green, Charles, The Gardens, Pendell Court, Bletchingley, Surrey.
 Horst, H., Kew Nursery, Richmond, Surrey.
 Hill, E., The Gardens, Tring Park, Tring.
 Hudson, James, The Gardens, Gunnersbury House, Acton.
 Kinghorn, F. R., Sheen Nursery, Richmond, Surrey.
 Laing, John, Stanstead Park, Forest Hill, S.E.
 O'Brien, James, West Street, Harrow-on-the-Hill.
 Williams, Henry, Victoria Nursery, Upper Holloway.
 Woodbridge, John, The Gardens, Syon House, Brentford, W.

Bealby, William, The Laurels, Roehampton Park, Putney Heath, S.W.
 Bennett, H., Shepperton, Walton-on-Thames.
 Cannell, Henry, Swanley.
 Child, Jas., The Gardens, Garbrand Hall, Ewell.
 Douglas, J., The Gardens, Great Gearies, Ilford, E.
 Duffield, G., The Gardens, Bamford Lodge, Winchmore Hill, W.
 Eckford, Henry, The Gardens, Boreatton Park, Baschurch, Salop.
 James, J., Woodside, Farnham Royal, Slough.
 Lathbury, D. C., Woodend Cottage, Witley, Surrey, and 1, Oxford and Cambridge Mansions, Marylebone Road, N.W.
 Llewelyn, J. T. D., F.L.S., Penllergare, Swansea.
 Turner, Harry, Royal Nursery, Slough.

TALL LOBELIAS.

By these I mean the varieties which have originated from *L. fulgens*, *L. splendens*, and perhaps *L. cardinalis*, and very frequently designated perennials, and indeed they may be, but that is a moot question. In certain soils and places they are scarcely biennial, while in others I have known stools to exist for several years. In the bog garden they are the longest lived, but under all conditions it is advisable to secure duplicate stocks, as they most capricious in their behaviour, and they are so distinct and showy that we cannot afford to lose them. To keep certain varieties true to name they are propagated by cuttings, the young shoots being taken off in spring and struck in gentle warmth, and they quickly form good plants. Of course such a method of propagation is indispensable where it is desirable to keep certain varieties separate, as in trade establishments. I have found them to very impatient of splitting up, having lost many plants after division, and they do not like to be kept without plenty of moisture. But where a particular variety is not so much a desideratum as a strong showy batch of plants the best way to increase the stock by seeds; and here let me say that if certain kinds are kept separate seeds collected from such will generally come true, but I think a slight variation in foliage and colour is very desirable in a bed of these plants, and to this end a packet of good mixture should be sown, usually under the name of *L. splendens hybrida*; from such seeds I have secured a fine display with many shades of colour, but all rich, and vigorous-growing.

To secure good flowering plants the same year the seed should be sown very early in the year, and the seedlings are very slow-growing until they reach a certain stage, when they make rapid growth. The end of January or early in February is not too early to sow; this should be done with care, as the seeds are exceedingly small, and by no means so free in germinating as the dwarf bedding Lobelias. Well drain the pots and fill with light sandy soil, water well before sowing, and sprinkle the seed thinly upon the surface, after which lightly cover with a little sand, and cover the pot with a piece of glass and place in a gentle warmth, either in the greenhouse or pit in a shady position. It may be necessary to give further waterings, which should be done with a fine rose or syringe, so as not to disturb the small seeds. When the seedlings show they may be subjected to more light, and when strong enough to handle pricked off in stoves, finally potting them singly, placing them in the cold frame, when they will grow quickly, and by May be quite ready to plant out whenever they are required.

As to the position they should occupy we must judge from circumstances, but they are decidedly much more effective *en masse* than as isolated specimens. I like to see them planted thickly together, and when a good bed is secured thick with the spikes of crimson flowers it is one of the most distinctive features possible to have in a garden, and it is in prime when many other plants are failing.—T.

LILY OF THE VALLEY.

THIS is one of the most valuable of all flowers in winter; but although it is sometimes had in bloom at Christmas I do not think it can be forced with profit or with the utmost satisfaction at that time. I have seen flowers in December with some good market growers, but they had special appliances for bringing them forward which few gardeners possess. It must be started very early to flower now, and only the very best roots and crowns will submit to this. Much heat, too, is required to develop it fully, and I would advise those who possess good roots to defer forcing until February or March, when they will have a much better return for their expenditure. Now the flower spikes would appear puny and be deficient of fragrance, with little or no foliage to garnish them, but

two months hence the pure white flowers will come with the most perfect fragrance and abundance of the most beautiful green leaves, for which we may look in vain at present. I have seen many fine pots of home-grown Lily of the Valley in bloom in March, and I have also seen imported roots in the same condition, so that both sorts are good, and lovers of this charming flower should try to improve the bought pieces by careful culture in summer. Roots required to flower two months hence should be in their pots by this time, and they may either be placed in a cold frame or under ashes like other bulbs for three or four weeks, and then plunged in a bottom heat of 80°, when they will quickly throw up their blooms and leaves in great profusion.—W. M.

CURL TAIL APPLE.

WE have already figured one of the curiosities that were exhibited at the National Apple Congress at Chiswick in the Scotch Apple, Stoup Leadington. We now introduce to our readers a Sussex Apple, which was exhibited in the collection of Messrs. Cheal & Son of Crawley. The form which is here represented is not accidental, for the specimens

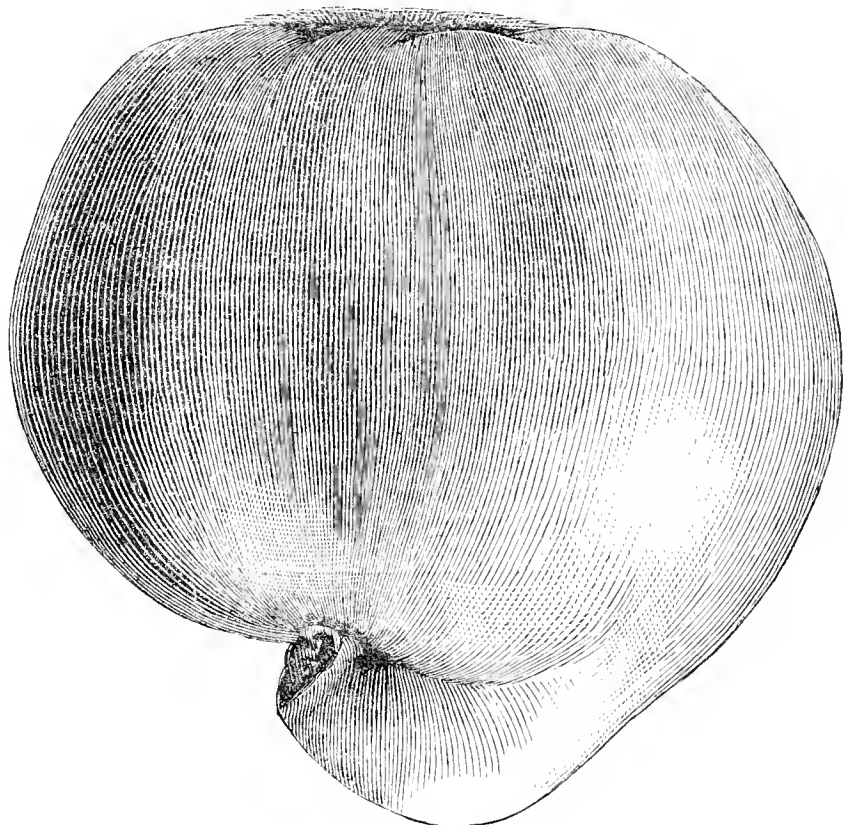


Fig. 3.—Curl Tail Apple.

shown were possessed of this character. It is only fit for cooking, and the flesh resembles that of the Codlins.

CURL TAIL.—Fruit medium-sized, 3 inches wide and the same in height, inclusive of the prominent swelling at the stalk; round and flattened, somewhat obtusely angular, and with furrows at the crown. It has an extraordinary enlargement at the stalk, which curls round like a parrot's beak, which is russety. Skin straw-coloured, without any traces of red or russet. Eye closed, with convergent segments, set in a rather deep and furrowed basin. Stamens marginal or median; tube deep and wide, conical. Stalk nearly obsolete, being the point of the fleshy swelling. Flesh white, very tender, sweet, and agreeably flavoured. Cells obovate, abaxile.

An extraordinary-looking Apple, which possesses little merit, and is only fit for cooking. It is in use up till Christmas.

THE CONSERVATORY AT LONGFORD CASTLE.

At the present time the conservatory at this establishment presents an appearance which may very appropriately be described as interesting and beautiful. When it is mentioned that the inside measurement of this structure is 42 feet by 32 feet, with two large stages in the middle and one round the sides, it will at once be seen that to obviate the least semblance either to meagreness or overcrowding, an extensive collection of plants is required, which in health and appearance, together with their arrangement, reflect the highest credit on the gardener Mr. Ward. Its outward appearance is such as cannot fail to command a certain amount of attention from both builders and horticulturists. To the latter, however, it is that a brief notice in your columns of its occupants will be the most acceptable. Entering by the principal doorway the visitor's attention is at once attracted by the grand floral display of climbers. On the left we have *Lapageria rosea*, resplendent with its numerous and beautifully rose-coloured bell-shaped flowers, whilst on the right is its worthily congener, *L. alba*, flowering with more than its usual freedom. To give the reader

some idea of its floriferousness, we have only to mention the fact of having counted on the point of one shoot, and within a space of 15 inches, no less than twenty-three fully expanded blooms. Some people experience not a little difficulty in growing *Lapagerias* successfully; there, however, they appear to be quite at home. They are now throwing up strong and vigorous shoots, the tips of which remind one of young *Asparagus*. One shoot we measured was already upwards of 12 feet in length, and judging by present appearance, will doubtless exceed 30 feet. Like many other plants their culture is of the easiest when once understood. They are planted out in narrow well-drained borders, filled with a compost consisting of good peat and sandy loam in about equal parts. One point in connection with their treatment is, never allow them to become dry at the roots, otherwise disappointment will inevitably follow. When the border is well drained copious supplies of water should be given when they are making their growth. This passes through the soil quickly, without in any way rendering it stagnant or sour. The contrary is sure to be the case when the drainage is imperfect.

Of other climbers which adorn the roof, *Jasminum grandiflorum*, *Taesonias exoniensis*, and *T. Van Volxemi* are worthy of mention. The two latter are deserving of special mention, owing to the fact of their having been continuously in flower for a period of three years, a circumstance we should think unprecedented, unless it be in their native wilds. Such arboreal climbers are worthy of a place in any conservatory. Everything in the way of stiffness and formality in regard to training and tying is strictly avoided. The long streamers suspended in the air laden with their beautifully crimson-coloured flowers, each supported by its slender thread-like footstalk, are very pretty and have a decidedly picturesque appearance.

At the time of my visit *Chrysanthemums* formed the bulk of the pot plants in flower, the collections being well grown, and containing many of the best varieties, with every conceivable shade of colour from dark purple to pure white. Of scarlet-berried *Solanums*, *Eupatoriums*, *Primulas*, and other flowering plants there are quantities, as well as a host of miscellaneous fine-foliaged plants such as *Palms*, *Ferns*, &c., which need not be here mentioned. Under the stages, and raised somewhat slightly above the path level, are narrow borders planted with *Tradescantia zebrina* and other plants suitable to the purpose. Every available space seems to be utilised and made the most of to render the surroundings as agreeable and attractive as one could desire. It would seem superfluous to add that cleanliness and order prevail, and that the resources in the way of plant houses, pits, and frames, from which the supplies are drawn, are on a large scale.—ET-ÆTERA.

PEA CULTURE.

THE time is at hand when those who wish to get an early dish of Green Peas must in some way manage to start them. For a very early supply I have proved by experience that there is no better way than growing them in pots. The way I have done this, to the delight of my employer and the satisfaction of myself, is as follows:—In the first week of the new year I take 100 large 60-size pots and fill them with good soil, and place four or five seeds of American Wonder or Little Gem Peas in each pot, slightly cover and place them in a cold frame. They need to be looked to occasionally to make sure they are safe from mice. In other respects they do not need attention till they are fairly up, when they must be carefully watered. When about 3 inches high I pick out the most forward and transfer them to 16-size pots, using thoroughly good loam and a little decayed manure. After receiving a good watering they are placed on a shelf near the glass in a cool house, and need no special care to make them produce a good dish or two by Whitsuntide.

The remainder of this sowing are planted out in good soil in an ordinary cold pit, and simply grown by a judicious use of sun heat and an occasional supply of liquid manure from the farmyard, or a handful of Clay's fertiliser or some similar artificial manure as may be thought best at the time it is required. These make a capital succession to the pot plants, and are followed by others of the same sorts sown as early as convenient in February at the foot of walls with a south or south-east aspect.

For early supply in the open ground there is nothing that I know of to surpass William L., and for a second early I have found Hundred-fold a most servicable Pea. This has sometimes gone by the name of the Cook's Favourite and well does it keep up its reputation at this establishment. There are many other good and well-known sorts that could be mentioned, and which I have made a speciality of, but I will give my list with cultural remarks in another issue.—GEORGE MERRITT, *Gardener to Lord Daer*.

THE CEDARS, LEF.

THIS, formerly the residence of the late J. Penn, Esq., founder of the firm of J. Penn & Sons, Greenwich, who have gained a world-wide reputation in the construction of marine engines, now occupied by his widow, is one of those charming estates which in years gone by was famous for its Elm groves and very fine specimens of ancient Cedars of Lebanon, but now is gradually being encroached upon by relentless builders. It is also famous for its association with the poet Noble, who appears to have revelled in the then sylvan grandeur of its rural scenery. Here he was inspired to write "The Gipsies' Camp" and the "Cottage of Content." Could the poet survey the scene as it is to-day and compare it with that of the period when he wrote he would see a vast difference.

Villas have sprung up around, mushroom-like, and railways have intersected the estate since then. But although so much change has been wrought in its surroundings the gardens still retain their picturesqueness, and contain much that is worthy of note.

The pleasure grounds—there being no flower garden in the ordinary accepted sense of the term—comprising upwards of 20 acres, are charmingly situated on a gentle slope terminating in a valley, from which arises on the opposite side another slope equal in extent. The foregoing is laid out in the picturesque style with much boldness of design. Broad expanses of open and beautifully kept lawn and walks, with graceful flowing curves, avenues of noble Elms, with remarkably fine specimens of ancient Oaks, Cedars, &c., attract the eye as we stand on the terrace of the massively built mansion. The latter is clothed with climbing Roses, *Jasminum*, *Ampelopsis*, and Ivy. The last-named plant is a great favourite with Mrs. Penn. A large quantity is planted out in boxes on the balconies and porticoes, and allowed to trail gracefully down, thus having a most charming effect. At the south-eastern end of the mansion stands a neat little conservatory. This contains a fine specimen of Tree Fern, *Cyathea medullaris*, in the centre, surrounded by a choice collection of Palms and flowering plants in variety, all looking remarkably healthy and well grown. Near by are very fine examples of Cedars of Lebanon, said to have been planted during the early part of the last century. The branches of one, the largest of these trees, spread out to a circumference of nearly 200 feet. These seem to thrive remarkably well here, notwithstanding the injurious effects of London smoke, which of late years has swept down in such volumes as to almost entirely annihilate the whole of the Conifer family in this locality. Fine specimens of *Catalpa bignonioides*, *Picea Nordmanniana*, *Acer macrophyllum*; also Planes, Scarlet Oak, Chestnuts, and many others adorn the lawn. The shrubberies are well arranged and planted with a choice selection of shrubs. A great feature in these grounds is well worth noting: it is the employment of Ivy for covering around the bases of specimen trees. Many of us know how impossible is the task to maintain a green turf underneath large trees. Here this difficulty is solved by planting Ivy around the stems of the large trees, and pegging it down until it covers the bare space and forms a compact mass of dark-green foliage.

As I have previously mentioned, but little bedding-out is practised, and this some distance away from the mansion. What is done is simple and effective. An object worthy of special mention is the large and well-arranged Rose garden, which is situated to the right of the pleasure grounds. It is well sheltered from cold winds. Some thousand standard, half-standard, and dwarf Roses, embracing all the newest and finest varieties, are thriving in the best possible health and vigour. These were at the time of my visit (July) a glowing and varied mass of exceptionally fine blooms. It may be added that Mr. W. Penn takes a deep interest in the queen of flowers, and he is ably seconded in his efforts by the practical knowledge and assiduous attention of the gardener, Mr. Fox. Below this and hidden from the grounds is a large orchard of some few acres devoted to large standard Apples and Pears, both of which are carrying good crops of fruit. Stretching away to the left on the slope is a large and well-kept cricket ground. A large sweeping belt of shrubs is employed to keep the railway from view, which intersects one-half of the estate.

At each end of the grounds is a footbridge, over which we pass to the lake, a remarkably fine expanse of water, measuring about one-fourth of a mile in length and 40 to 50 yards in width. It is irregular or serpentine in outline, with a rustic bridge over its centre, and contains a variety of fine fish, also waterfowl. The margins on both sides are planted with choice shrubs and Conifers, such as *Picea lasiocarpa*, *Pinus Coulterii*, *Abies Douglassii*, a fine specimen of Copper Beech, Chestnuts, &c. A quantity of plants of various species of *Nymphæas* had been recently planted in the lake. The landscape above is diversified with tastefully disposed clumps of trees. The outskirts are belted with young trees, through which is a long walk over a mile in length, on either side of which spring up early in the year quantities of Bluebells, Daffodils, and other welcome spring flowers. The land on this side, about 40 acres or more in extent, is devoted to pasturage.

The kitchen garden is situated to the right of the mansion out of the grounds proper; this is five acres in extent, enclosed in a "ring" fence. This garden possesses two disadvantages—viz., having no walls and a northern aspect. It will thus be seen to be almost impossible to obtain very early crops under such difficulties. Notwithstanding these drawbacks, however, Mr. Fox manages with the exercise of much skill and attention to produce excellent crops of vegetables. The quarters devoted to Beet, Onions, and Peas bore the stamp of good cultivation. Strawberries are grown on a large scale here, *Vicomtesse Hericart de Thury* and *Pioneer* being the principal varieties. The *Asparagus* is grown after the French method, and the extraordinary growth of the plants certainly indicates that this system succeeds well here. Bush fruits as well as Apples and Pears adorn the margins of the walks; trees of the latter were bearing very heavy crops of good fruit.

At the bottom of this garden is a long range of successional Peach houses. The trees are large, healthy, and well trained, and consist of the leading varieties, many of which were bearing fair crops of well-coloured fruit. I ought to note that the houses are "lean-to, and the trees trained on the curvilinear system. Upwards of a thousand Strawberry plants were flourishing in pots for forcing purposes in front of this range. Mr. Fox grows *Pioneer* as the principal variety for forcing, and finds it to succeed far better than the *Vicomtesse de Thury*. Another range of houses consisting of three large vineries, a greenhouse, and stove, are situated at the upper end of the kitchen garden. The Vines having been much neglected previous to Mr. Fox taking charge a year ago, the latter decided to discard

these and replant with new Vines. Advantage is taken of the absence of Vines to grow Pelargoniums and similar plants for producing cut flowers, which are largely in demand. A large collection of Azaleas, white principally, grown for affording cut flowers, occupy the greenhouse. The large stove contains many hundreds of small Palms, Orchids, Ferns, and foliage plants, such as Dieffenbachia Bausei, Dracenas in vars., Crotons, Pandanus, Acalyphas, Caladiums, &c., for furnishing purposes. Two small span-roof houses are devoted to growing a number of young Palms and similar plants for same purpose; also a large quantity of Eucharis, Gardenias, and Stephanotis for supplying cut flowers. Adjacent to the gardener's house—a commodious residence—is a large house devoted exclusively to growing many hundreds of Adiantum cuneatum in pots for supplying fronds for decorative purposes, all in excellent health, and several heated pits for the same class of plants. In conclusion, Mr. Fox is to be congratulated on the excellent order and arrangement of the several departments under his charge.—T. W. SANDERS.

THE ORCHARD.

BARREN FRUIT TREES, AND HOW TO MAKE THEM FRUITFUL.

THERE are many causes to which the sterility of fruit trees in hundreds of orchards in this country may be ascribed. Not the least of these is the result of annual neglect—that is to say, that brought about by leaving the trees year after year to take care of themselves, by failing to make a timely and judicious use of the pruning saw and pruning shears; consequently the overcrowding of tree and branch, excluding sufficient light and air from the branches, prevents to a great extent the formation and development of fruit buds, and encourages the growth of lichens and moss. The operator, being provided with a good pruning saw, pruning shears, and ladders, should begin the work of amputation by cutting out all the cross and ill-placed branches, so as to let plenty of light and air among those left to form the tree, and which, almost needless to say, should be those best furnished with fruit buds and indicating most vigour and health. The upright ones of these should, if necessary, be shortened with the shears. The thinning and shortening of the branches having been completed, the prunings, which in magnitude will in many cases be equal to that of the trees whence they were taken, should be faggotted and then removed to the faggot yard. The moss should then be scraped off the trees with a piece of hoop iron or lath, the trunks and principal branches being afterwards scrubbed with an old besom.

This being done, a cartload of quicklime, more or less according to the number of trees to be operated on, should be taken to the centre of the orchard and dissolved in a large tub or iron tank, adding thereto a small per-centage of new dry soot. The liquid, having been well stirred, should then be strained through a fine sieve into the garden engine, and, choosing a calm day for the operation, be applied forthwith to the lichen-infested branches from every side of the tree, so that they may be completely smeared with the solution. This simple and effectual remedy will speedily destroy the lichens, consequently the trees will become vigorous and fruitful.

The next step that should be taken with a further view of promoting fertility is the laying on between the trees a good surface dressing of whatever fertilising agent can be spared for that purpose. Failing a better one, decomposed vegetable matter will contribute to the object in view, and the substance of which by the agency of the worms will reach the roots in due time. Furthermore, if a trench about 3 feet deep and 2 feet wide be opened at from 3 to 5 feet (according to the size of the tree to be operated on) from the bole, the roots in that space being cut clean away in the process of excavating the soil, the latter with the addition of some richer soil being afterwards replaced in the trench, the result will be such as not only to compensate for the labour involved in the operation, but also to justify an extension of its application in the same direction afterwards—that is, to trees which fail to yield satisfactory crops during favourable seasons.—H. W. WARD, *Longford Castle, Wilts.*



KITCHEN GARDEN.

WITH the advent of the new year many who have done little or nothing in their kitchen gardens during the past two months will now bestir themselves and prepare for getting in the crops in spring on the first favourable opportunity. To do this with advantage the soil and everything should always be in readiness beforehand, and this should be the main work just now in vegetable gardens. Throughout January none can make any mistake by manuring, digging, or trenching all empty quarters. Many autumn and winter vegetables, such as Spinach, Broccoli, and Savoy, are now over, and the sooner the remains of them are cleared off and the ground turned up to the weather the better. Every foot of ground now is ready for the reception of the spring crops, and we have found so many advantages from being thus prepared at

sowing and planting time that we would advise all of our readers to try the system.

Forcing Vegetables.—Plenty of choice vegetables will now be produced, and the great point is to maintain a regular supply after the first have been sent to the table. This is easily done by putting in successional batches of roots or seeds in suitable quantities, and at intervals according to the demand. Those who have not had the means to begin forcing in autumn may do so now with the assurance that they will find it quite easy if the instructions given in previous numbers are followed.

Tomatoes.—These may also be sown now, placing half a dozen seeds in a 3-inch pot, which has been previously filled with a light mixture of loam, leaf soil, and sand. The pots need not be plunged, as the seed will germinate freely and the young plants grow well in a temperature of 70°.

Potatoes.—Where hotbeds have been made up a week or two ago the tubers may now be planted. The soil in which they are placed should be rather rich, and 1 foot from set to set and 18 inches from row to row will be a suitable distance. In planting do not break off any strong growths which may be formed, and as these will soon appear above the soil more protection than the glass light must be given when frost occurs.

Radish.—A little seed may be sown in any corner of the hotbeds, and a patch may also be put in in a sheltered corner at the bottom of a south wall, or in a cold frame or under a handlight.

Rhubarb and Seakale.—These may now be covered with the pots made for this purpose, and if a quantity of leaves and littery manure mixed together is placed over these so as to create a gentle heat the crowns will soon be induced to start into growth, and much fine produce may be secured in this way during the spring.

Seed Lists.—These are coming in, and their contents will no doubt be usefully discussed in the pages of the Journal, and the characters of the different varieties of vegetables estimated for the benefit of the inexperienced.

FRUIT-FORCING.

Cucumbers.—*Plants in Houses.*—Take advantage of every opportunity to make the most of the little sun we are as a rule favoured with at this season, giving a little ventilation if the weather be mild in the early part of the day, and close early in the afternoon, or shortly after noon, damping the house at the same time with tepid liquid manure. On fine mornings the pathways should be damped and the plants lightly syringed overhead, which will to some extent assist in keeping down red spider that is often troublesome where sharp firing has to be resorted to to keep up the required temperature. Weak tepid liquid manure may be given to plants which are making free growth, but should the plants show any signs of not growing tepid water only should be applied until the growth becomes free. To encourage surface roots a top-dressing should be given of turfy loam in a lumpy state and a fourth of horse droppings, having it previously warmed to the same temperature as that of the house. Maintain the night temperature at 65° or a few degrees higher in mild weather, 70° to 75° by day, and 85° to 90° with sun heat, keeping the bottom heat steady at 80°. Plants for the early spring supply of fruit should now be prepared, sowing the seeds singly in 3-inch pots half filled with soil, so as to leave space for top-dressing when required, plunging the pots near the glass in a brisk bottom heat. Seed for raising plants for growing in pits or frames heated by fermenting materials should now be sown, for particulars of which see Melons. Taking free-bearing and constitution into consideration Telegraph is still unrivalled.

Melons.—From seed sown now plants can be raised to afford ripe fruit late in April or early in May in light well-heated houses. Sow the seeds singly in 3-inch pots, leaving room in the pots for top-dressing, and plunge the pots in a bottom heat of 80° to 90° near the glass. As soon as the plants have unfolded the first leaves top-dress them, keeping them as close as possible to the glass without touching so as to prevent a weakly growth. As to varieties tastes differ, but Scarlet Premier and High Cross Hybrid are capital varieties.

Making Hotbeds.—Fermenting material composed of Oak or Beech leaves two parts, to one of stable litter well mixed and thrown into a heap, turned over twice and damped as advised in our last calendar, will now be ready for making up. The most suitable site is a dry one, and in front of a wall or hedge to the north, so as to break the winds from that quarter, and it is well if there be a similar protection to the east and west. The site should be dry, or if not it should be made so by a layer of faggots. The bed should be so formed that it will have about 6 inches of space to spare all round the frame. In making the bed put the materials as evenly together as practicable, and beat them down as the work proceeds. The bed should be made one-third higher than the intended height to allow for settling, and this will need to be about 6 feet high at the back and a foot less in front. The bed will have settled down in about a week, when level the surface of the bed, return the frame, and put in sufficient fermenting material to make the depth at the back of the frame correspond with the front, and over this 4 to 6 inches of sawdust or similar material for plunging the pots in, or pots or cuttings, &c. It is well to have the frame with a cavity inside, which may be made by nailing some laths an inch wide inside vertical to the frame, and 6 inches less than its depth, nailing some half-inch boards to these so as to form the cavity. This will allow of the plants having the benefit of top heat from the linings after that from the bed is declining.

Cherry House.—When the trees are fairly growing let the day temperature be kept at 50° to 55°, and if the days be bright air should be admitted, but only to the extent of keeping the temperature from rising above 65°, keeping it from sun heat at 60° to 65°, admitting a little ventilation in the

first instance at 55°, and when it declines to 55° close the house for the day. Syringe overhead in the morning and again in the afternoon if the weather be bright, but if the weather be dull it will suffice if the borders and other available surfaces are damped whenever they become dry. The night temperature should still be kept at 40° to 45°. See that the borders are thoroughly moistened through, as root-action commences with, if it does not precede, the growth of the stems. The water supplied ought not to be less in temperature than that of the house. Trees in pots will need copious and repeated waterings if the soil has become dry.

PLANT HOUSES.

Dendrobiums.—These are scarcely wanted in flower until *Calanthes* are past their best, and the houses in which they are arranged are still very gay, and will continue to be for some weeks longer. But to succeed these a few *Dendrobiums*, such as *D. Wardianum*, *D. crassinode*, *D. Devonianum*, *D. heterocarpum*, and others that were placed early to rest, should now be thoroughly soaked in tepid water and introduced into a temperature of 55° for a week, and then be given a temperature of 5° higher. If these plants are grown in baskets suspend them from the roof until they come into flower, when they can be taken down and arranged amongst other plants if thought desirable. If they have been properly attended to during their resting period their flower buds will be very prominent along their pseudo-bulbs. Some care will be needed in the supply of moisture to these plants until they start into growth. The atmospheric moisture in an ordinary plant stove will be ample until after the plants have flowered without the use of the syringe. At the root after the first soaking only give sufficient to prevent the moss and peat becoming dry. A few plants of the old and useful *D. nobile* may also be started under the same conditions. Before introducing these sponge the foliage with water in which a little soft soap has been mixed to remove all dust. Those not wanted to come into flower must be kept cool, only giving sufficient water to keep their pseudo-bulbs from shrivelling. The same remarks apply to such varieties as *D. Falconerii*, which must have a good season of rest if it is to be flowered well, *D. primulinum*, *D. Parishii*, *D. crystallinum*, the varieties of *D. Pierardii*, and many others which, if kept at rest for some time longer, will form a good succession to the first varieties mentioned. The small-growing but beautiful *D. pulchellum*, which generally is rather late in completing its growth, should now, if thoroughly ripened, be placed for a month or six weeks in a temperature that will not range above 50°. *D. thysiflorum*, *D. chrysotoxum*, and *D. densiflorum* should not be punished during their resting season by being placed in too low a temperature. The one last named is sufficiently low, for if starved their foliage is rendered of a yellow sickly appearance. The first-mentioned may still be kept at rest, while a plant or two of *D. densiflorum* may be placed in a temperature of 60°, in which it will soon show its flower spikes.

Maxillaria picta.—This amongst sweet-scented Orchids is a gem when grown in 5, 6, and 7-inch pots, in which size it is most useful for decoration, and can be used in light positions in the dwelling-room without injury. By judicious treatment and sufficient plants a supply of flowers can be produced during November, December, and January—the three worst months of the year. While making their growth these plants enjoy the heat and moisture of the warmest house—in fact, the conditions of an ordinary plant-stove suit them well. Directly their growth is finished the plants must be placed in a lower temperature. One end of the house in which *Odontoglossums* are grown will do well, only give them a little more light. These plants can then be introduced into heat as required, and they soon show their flowers at the base of the pseudo-bulbs, and just before they expand they should be placed in a temperature of 50°, in which the flowers last nearly double the length of time they do when kept in a higher temperature. After flowering they are again placed in the coolest structure, in which they will remain for another month to rest; while in this condition only sufficient water is given to keep their pseudo-bulbs and foliage fresh. The plants are divided if they require it, and repotted as soon as they show signs of growth. Good fibry peat, the small particles shaken out, and a little charcoal with a layer of living sphagnum moss on the surface, suit them well. Every alternate year the whole of the old compost is shaken from their roots and fresh supplied. After potting, and until the plants are in active growth, water is carefully applied, and afterwards liberally until growth is completed.

Cypripedium insigne.—This and its varieties are amongst the best *Cypripediums* that can be grown, for they will stand nearly three months in the conservatory while in flower. The majority of our plants have flowered, and are placed in a cool house where the temperature is not allowed to fall below 40°. They will remain in this position for another month, and then be allowed to make their growth in a vinery. A vinery just started suits them admirably—in fact, we very seldom move our plants from this position until they are showing their flowers in early autumn, and then according to the time they are required we assist them to develop in a little more heat.



QUEEN BATTLES.

THOUGH queen battles are not at all uncommon, but of frequent occurrence in large apiaries, they are seldom seen, and therefore a few words anent and descriptive of them may not be

unwelcome to some readers of the Journal. Queen bees are interesting creatures from every point of view. Their fertility is astounding, as well as their labours in distributing their own eggs, for they lay all the eggs of their hives. In appearance they are more genteel than either drones or working bees. In manner they are quiet and inoffensive, modest and retiring, graceful and queenly. They have stings, which are slightly crooked and not half so sharp as those of working bees. Their stings are never used except in royal battles; indeed no amount of annoyance, handling, or squeezing by the fingers of the bee-master can provoke them to draw their swords; in a word, they will bear pressing to death rather than use their stings! How different it is with working bees, which so readily use their stings on receiving the slightest touch; but the quiet conduct of queens is changed in a moment into rage and ferocity on meeting rival queens. Whenever two queens meet they rush at each other furiously and quickly fight it out. Queen battles do not last long, but they are desperate. In all such contests it is death or victory. Reconciliation or compromise is out of the question.

In autumn while swarms are being united spare queens are plentiful. This year I took two young queens into our kitchen and put them in tumbler glasses on the dresser. As there was a lady in the house who had not seen a queen battle the tumblers were lifted and the queens permitted to meet. They had never seen queens before, but these at once rushed furiously at each other and quickly fought it out. One of these queens was a half-bred Ligurian, which gained the advantage at the first grip. It took hold of its rival by the shoulders (thorax) just behind the next, and used its dagger from below in the bosom of the other queen, which struggled hard for a time to use its sting but in vain. She was held fast in the grip of the Ligurian and stung to death in about two minutes, when the victor withdrew her sting and walked away from her victim apparently none the worse for the encounter.

In another queen battle I witnessed there was a violent struggle to get the best hold or mastery, clasping each other round their waists and twirling round and round. In this case the queens were in the act of swarming when they met, both going with the swarm, and met on the flight board. I tore the combatants asunder and cast them in the air amongst the swarm then on full wing. They were hived with the swarm; next morning one of the queens was found dead on the floor board.

Once at Sale I cast two swarms together and left them for a few minutes, and went back to see the battle or the results of it. I was too late, the queens had met amongst the bees as they hung clustering to the crown of the hive, and fell in their struggle to the board below. The victorious queen was just leaving the one she had killed and walked away from it, as I thought, with an air of triumph.

Queen bees come into the world with an undying dislike to each other, and this instinct is manifested in their infancy and as long as they live; indeed before they are born they begin to sound the trumpet note of war, which bee-keepers know and sometimes like to hear. When bees swarm the old queens go with the swarms, and young queens are in royal cells to take their places, or, in other words, to be their successors. The queen that is first matured in any hive (and there are generally from three to six reared in every hive that swarms) heralds her own advent by making the distinct and well-known sounds which have been alluded to. She means to reign. One or more of her sisters come to perfection and at once begin to utter dissentient sounds from their cells, and thus put in their claim to the high position which at birth fell to the lot of the first-born. The sounds, or piping, which come from the cells of her sisters provoke her much and cause her to run up and down the hive with murderous intent, for she wants to kill them all; the bees, however, prevent her from carrying her desires into execution by guarding the cells of the younger queens and warding her off when she comes near them. This happens when the bees mean to swarm, and the piping goes on for three days and nights. When the bees do not wish to swarm they stop the piping and kill the supernumerary queens and cast them out. The reports seen about two queens living together happily in a hive I read with great mistrust, for two queens in a hive are as unnecessary as they are unnatural.

In uniting swarms many bee-keepers are afraid of both queens being killed in such battles. Though it is just possible for both queens to be wounded at the onset of the encounter, it so rarely happens that we have no fear of losing both queens in uniting swarms, and, if both queens are young, we do not spend time in trying to catch one of them to prevent a fight. In a very long experience, covering many hundred instances of swarms united, we have only known one battle of queens in

which both were wounded. One was killed in the encounter, the other died next morning.

We see that queen bees come into the world amid great dangers. More are hatched than are required, and in the nature of things two will not live together and indeed are not permitted to live together. A swarm or a stock of bees refuse to have two queens in a hive. The working bees often prevent queen battles by killing spare and unwelcome queens themselves. They do this work by a wonderful and cruel process. When the bees find a strange or unwelcome queen bee amongst them they seize and enclose her by clustering closely around her—so closely that they appear to be crushing her to death. In these little clusters of about thirty bees the queen is quite hidden from sight. These clusters are termed "regicidal knots," and certainly they are formed by little savage regicides, every one being bent on destroying the queens. But they do not use their stings in this work; if they did the queens would be killed in a few seconds, whereas they seem to torture the queens for hours, it may be for a whole day, by encasing them in these hard regicidal knots. I have saved the lives of many queens by tearing them from the grasp of their savage tormentors.

If young queens safely pass through the perils of their infant days, and are happily placed at the head of a swarm or colony, they have then to expose themselves by taking necessary excursions to the fields. When queens are about five or six days old they leave their hives to meet the drones; and these excursions are not unattended with danger of loss of life, for many never return, how they are lost no one can tell. Those that meet drones and safely return never leave their hives again but on occasions of swarming.—A. PETTIGREW, *Bowdon*.

THE COMING BEE.

THE remarks on this bee by Mr. Stewart read very "American" to me, and I am glad that our good friend Mr. Pettigrew has issued his note of warning. We are most of us disposed by nature to discard what is old and trust to the new; in this respect we are still like the Athenians of old. But to what have the efforts of the Bee-Keepers' Association been directed but the encouragement of bee-keeping among the cottager class? Now with all our lectures, and leaflets, and advice, it will yet be years before there will be any general conversion of the cottager to the bar-frame hive. I think this may be reckoned an ascertained fact. There is far more hope of inducing them to try sectional supers on flat-topped straw skeps, such, for instance, as the Buttermere skep. Neither do I think that artificial swarming will be generally adopted yet awhile by the cottager. Now, then, supposing the excessive cultivation of wing power in the queen, would it be an advantage? Several years ago, when living in another county, a cottager's bees in my neighbourhood were always noted for swarming "right away." They went long distances and were often lost. At the end of last season I had mixed two hives of condemned bees with a favourite stock. These bees worked through a glass passage into a spare room. Friends in my house, interested in my manoeuvres, watched them frequently the following day. On my return home I learnt that three queens had been seen taken along the passage dead! This news was decidedly unsatisfactory. Several examinations detected neither queen nor eggs. The season was getting on. What should I do? I bought for a trifle a weak stock from a cottager, drove it with difficulty, there were not more than a large double handful of bees. Fearing that the weather was too cold for opening the entire hive and spraying with scented syrup, I placed in rear of the stock a queen-excluder bar with double zinc, so as to lessen the size of holes, put a bar of honey behind this, threw in my driven bees, and then added the dummy and closed the hive. In this state I left them ten days or a fortnight; then one evening I removed the queen-excluder bar, and the following morning a good handful of dead bees were in the passage. My plan had been, I considered, partially successful, and I hoped that many bees with the queen were accepted.

In the spring her majesty was discovered, and a most valuable bee she proved for breeding purposes. This hive was decidedly my most populous and my best working hive. From it I obtained over 50 lbs. of sectional and super honey, the former from the rear. One day when the bars in the super were nearly all sealed there was a manifest diminution in the number of inhabitants—the super was, in fact, nearly bee-less. I was convinced a swarm had escaped. I gained no tidings of it, but many weeks after a neighbouring bee-keeper told me he had seen a large swarm go "right away" over the town. Was it mine? About ten days later ditto repeated. On each occasion nothing was seen of the swarm, although the window where they work is being continually passed by members of my household. On inquiry at my friend, the cottager, I find his swarms have a knack of getting away!

Here, then, in two cases, either by selection or survival of fittest, certain queens appear to have acquired a greater power of flight, but where is the advantage? To me it appears, on the contrary, a dead loss. If our ordinary bees in summer can fly easily at the rate of a mile in a minute (and this I apprehend they do), surely this is sufficient wing power, and scarcely needs increasing. What we require are healthy

queens, but provided their early flights are sufficient for impregnation—and then the slim and genteel appearance of the virgin queen renders flight more easy—what further flight is requisite? Nay, supposing artificial swarming to be regularly practised, the queen would never fly again after impregnation. Why, then, strive to increase her powers of flight? and supposing the attempt made as Mr. Stewart suggests by trotting out his queens, a proceeding, as Mr. Pettigrew shows, most likely to end in her loss, would half a dozen flights materially improve her powers? I trow not, and if the "coming bee" is to be noted for extra flying powers in the queen I should vote for the old, believing that if a queen's power of flight were greatly increased, instead of being the "coming bee," she would be more frequently the "going, going, gone!"

No, it is not all bees that are so well educated as the old woman's, who told an inquirer that her John always managed the swarms. "Aye," was the reply; "what do you do when John is out of the way?" "Oh! well," she retorted, "her bees never did swarm when John was out of the way!" But even if this education of the bee is complete will John be always able to fly after the swarm? If not, I almost think our cottagers will be content with present powers; and this much is certain, that if they will bestow a little more care and attention on their stocks, and, though still sticking to their straw skeps, try some of the sectional appliances, and not slaughter in the autumn, the present brown bee or some of the hybrids tolerably common now will help, in favourable seasons, to pay their rent and provide some fire for the winter.—Y. B. A. Z.

[ERRATUM.—A printer's error occurred on page 519 of our last issue on the eighth line below the diagram. For "if food is" read "if brood is," and the matter will be understood.]

TRADE CATALOGUES RECEIVED.

- W. Piercy, 89, West Road, Forest Hill, London, S.E.—*List of Summer-flowering Chrysanthemums*.
Hooper & Co., Covent Garden, London.—*List of Novelties for 1884*.
Frederick Roemer, Quedlenburg, Germany.—*Catalogue of Flower, Vegetable, and Agricultural Seeds*.
B. S. Williams, Upper Holloway, London, N.—*Catalogue of Flower and Vegetable Seeds*.
Dickson & Robinson, 12, Old Millgate, Manchester.—*Catalogue of Vegetable and Flower Seeds*.
George Bunyard & Co., Maidstone.—*Catalogue of Vegetable and Flower Seeds*.
Dickson, Brown & Tait, 43 & 45, Corporation Street, Manchester.—*Catalogue of Vegetable and Flower Seeds*.
Robert Veitch & Sons, 54, High Street, Exeter.—*Catalogue of Vegetable and Flower Seeds*.
Sutton & Sons, Reading.—*Amateurs' Guide in Horticulture, 1884 (Illustrated) and Pocket Garden Calendar*.
Chas. Sharpe & Co., Sleaford.—*Catalogue of Flower and Vegetable Seeds (Illustrated)*.
Wm. Leighton, 89, Union Street, Glasgow.—*Catalogue of Vegetable and Flower Seeds*.
Francis and Arthur Dickson & Son, 106, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds*.
Ralph Crossling, Penarth Nurseries, South Wales.—*Catalogue of Vegetable and Flower Seeds*.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (G. B.).—Nesbit's "Practical Land Surveying" and "Practical Mensuration," both published by Longmans, Green & Co., are reliable works upon these subjects. Colenso's "Elements of Algebra," published by the above firm, and Gill's "School of Art Geometry," are both useful elementary works. The last can be obtained through any bookseller.

Gardeners' Year-Book (*Young Gardener*).—This work is in the press and will be published in a few days.

Renton's Monarch Leek (*J. A. W.*).—No doubt many persons besides yourself would be glad to grow this variety. We are not able to say where seed is to be had, but if there is any for sale it will presumably be advertised.

Vines Unhealthy (*A Lady*).—We have seldom seen Vine wood so unsatisfactory. It is soft, immature, and contains by far too much pith. Either the border is defective or the foliage has been overcrowded, and possibly also the Vines have been overcropped. Without knowing the state of the border and roots, the age and distances apart of the Vines, and of the laterals on the rods, we cannot give you any useful advice on the matter.

Plum Suckers and Seedlings (*J. E. W.*).—The seedlings may be fruited if you choose to ascertain if one or two of them may perchance afford you new and good varieties, but there is small chance of either the suckers or seedlings bearing fruit of any substantial value. We should regard them as stocks, to be grafted or budded, the latter being the best method of increase.

Trenching and Planting (*H. P., Winchester*).—It would be a mistake to trench deeply such soil as yours, and bring up a great quantity of clay. After trenching the soil should be allowed to settle, but not necessarily "for months." The subject will be referred to in our "Work for the Week" columns in an early issue.

Cactuses (*E. Adams*).—We shall shortly publish notes on the culture of these plants, with other particulars such as you appear to require, and possibly they will be of more service to you than anything to which we can refer you in the manner you suggest.

Making a Tennis Ground (*J. B.*).—If the ground is wet and spongy it ought to be drained, and a layer of ashes 2 or 3 inches thick covered with an inch of very sandy soil would render the surface firm and porous. If the site is naturally dry the ashes will not be advantageous, but rather the reverse, as the grass would be the sooner parched and browned in dry weather.

Covering Mushroom Beds (*Cambrian*).—Equally good crops are had in houses and sheds when the beds are covered with hay in some cases and short straw in others. Straw shaken from the manure is preferred by growers of Mushrooms in the open air, and there can be no better material for beds under cover. Mr. Barter's address is given on the first page of "Mushrooms for the Million," and you can procure the information you need by writing to him.

Wellingtonias Coning (*L. F. Moffat*).—Many trees have produced cones in this country. At Orton Hall, near Peterborough, there are thousands of them, and seed has been gathered and sown; but no seedlings have been raised, or at least had not been a few months ago. We believe, however, that Wellingtonias have been raised from English-grown seed. The example you have sent is very fine, the cones, we think, being among the largest that have come under our notice.

Apple Tree Cankered (*F. J.*).—The specimen you have sent demonstrates that your tree is seriously affected with canker. In this case the disease has certainly not been caused by insects, but is the result primarily of immature wood. Are not the roots of the tree in wet or ungenial soil? We suspect they are, as the portion sent indicates that the tree has made long soft growths. Draining, root-lifting, and the addition of calcareous matter appear to be needed. Scrape the parts affected with American blight, and follow the treatment generally described by Mr. Iggulden in pp. 550, 551, last week.

Chrysanthemum Flower Defective (*R. C.*).—You ask "If the treatment has anything to do with the incurving of the florets of Princess of Teck?" It has everything to do with it, and the flower you have sent is not half developed because it has only been half supported. Early disbudding and adequate support afforded by careful watering, rich top-dressings, and supplies of liquid manure as needed, are the essentials for producing well-developed blooms. Some of them are then finished by dressing, an art that can only be learned by experience.

Murray's Vine Composition (*J. D., and others*).—You will find this insecticide advertised in another column. It is prepared by Mr. G. Murray, gardener, West Ashby Manor, Horncastle, and the majority of commendatory letters that have been published have been written by gardeners in Lincolnshire, where the article appears to have been extensively tried and given satisfaction.

Removing Garden Structures (*R. S. J.*).—A nurseryman who erects greenhouses solely for the purpose of conducting his business can remove them if he chooses to do so, as they are part of his stock in trade, and the fact of their being on brickwork does not abrogate his right in this respect. He is entitled to whatever compensation he can obtain if the structures are not removed on the expiration of a lease. This answer only applies to *bonâ fide* nurserymen and florists, not to persons who grow plants for pleasure and sell a number from time to time to assist in defraying expenses.

Cleaning Gourd Seed (*J. W. H.*).—Take out the pulp containing the seeds and place it in water, letting it remain for a time, then rub it well with the fingers in the water, separating the seeds. Remove the matter, and in fresh water proceed as before, and eventually the partially cleaned seeds may be placed in a hair sieve, immersed in water, and the cleaning process completed, when they can be spread out and dried. We are glad your Vines are now promising well. No subject is too "trifling" for our attention provided we can impart information that may be useful to inquirers.

Species of Cyclamen (*Old Subscriber*).—Cyclamen persicum is a native of Cyprus and other parts of the East, and was introduced in 1731. Many varieties have been raised from it, and amongst them is *C. giganteum*, a form distinguished by its larger flowers and stronger growth. *C. hederifolium*, *C. europæum*, *C. latifolium*, *C. neapolitanum*, and *C. vernum*, are all natives of Europe, and are quite distinct from *C. persicum*. They are hardy, and have a pretty appearance on a rockery.

Vine Management (*J. C.*).—You are perfectly right in your views. Nutrient is stored in Vines by the agency of the leaves, and this important process cannot be satisfactorily accomplished if the leaves have not space for development by full exposure to light and air, nor if they are permitted to become infested with red spider or thrips. Overcrowding of the foliage and a want of cleanliness are among the chief causes of failures in Grape culture. We shall be glad to have your notes when you find it convenient to send them.

Birds and Fruit Buds (*C. J.*).—A mixture of lime and soot applied to your Cherry trees with a syringe or water-engine would not be injurious to the buds, and might possibly act as a bird-deterrent. We have found that freely dusting Gooseberry bushes with lime when the branches are wet with dew is not at all liked by birds; whether they object to the white colour or not we are unable to say, but we know that bushes so dressed have not been visited by birds, while others left undressed have been deprived of most of their buds. We found that lime similarly applied to Plum trees for destroying moss on the branches also prevented birds visiting the trees. If it is the colour of the whitened trees that keeps off the birds then the addition of soot would not be an advantage. You might try the lime alone and in mixture with soot, and note the results.

Introduction of Primula sinensis (*Hants Subscriber*).—We presume you allude to the above plant, of which so many forms adorn our greenhouses and conservatories in winter. As its specific name implies it is a native of China. Mr. John Reeves, who died at Clapham in 1856, first directed attention to this plant. He was a tea-taster to the East India Company, and resided in China for many years. In 1821 the Chinese Primula, in consequence of his sending a drawing of it, was introduced by Captain R. Rowes, and presented by him to his relative, Mr. Carey Palmer, of Bromley, Kent. Mr. Reeves commenced sending plants from China in 1816, and besides sending twelve new Chrysanthemums in 1820 he sent the double Chinese Cherry, *Prunus serrulata*, and the Chinese Plum, *Prunus salicina*, to the Horticultural Society in 1820.

Heating (*J. T. S.*).—Provided the level of the water in the supply box is half an inch lower than the highest point of the pipes, the circulation, all other matters being right, will be perfect. The supply box may be higher, but as you ask for the minimum height we have given you a reply that you may act on with safety. Two soot doors are usually employed for a saddle boiler, but if set, as it ought to be, with what is termed a "split" draught—which directs the fire from the back to the front along the outside of the boiler, thence over the crown and into the flue—a central soot door is an advantage. The boiler should be raised on firebricks above the bars, so that when the scraper is used in cleaning it passes easily under the return pipes to the boiler. This is important. Your last question cannot be answered categorically, as everything depends on the setting of the boiler and the correct position of the pipes. You may make your own calculation on the basis that a square foot of boiler surface exposed to the direct action of the fire will heat 40 feet of 4-inch piping. You must remember, however, that the heat passing over the boiler is not half so effective, perhaps about one-third, of that passing under the dome. You would perhaps find useful information in Mr. Fawke's manual on hot-water heating, which can be had from this office in return for 1s. 2d. in postage stamps.

Samples of Vine Wood (*N. J.*).—The Muscat of Alexandria growth is of good average quality, being moderately strong, firm, matured, with little pith and good buds. The cane may be left a length of 6 feet, taking care to insure the lower buds breaking freely, syringing occasionally, and if requisite training the cane in a horizontal position. The Black Hamburgh wood is also in condition to bear good Grapes, but being weaker than the others not more than 4 feet should be left. The Alnwick Seedling rod we should shorten quite to the base of the rafter if not below it, and the pruning of all should be done at once. Do not attempt to crop heavily next year, and permit no crowding of the foliage. There is no doubt that under ordinary circumstances that Vines make considerable growth before there is any root-extension; but, as in your experiment, when placed in bottom heat root-movement commences with the swelling of the buds. We are glad to hear of your success and that our advice has been useful.

Packing Roses and Deciduous Shrubs for Tasmania (*A Fifteen-years Subscriber*).—The present time is the most suitable for dispatching such plants on their voyage as they would travel well now and arrive at their destination at a convenient time for planting. Strong wooden boxes should be obtained for the purpose, and could be readily made by a carpenter of any requisite size. The roots of the plants should be surrounded by soil, clay, and moss, and bound securely with matting. They can then be placed in rows either along the bottom or sides of the box, each row being secured in position by a batten nailed to the side or bottom of the box. They are thus rendered practically immovable. Thoroughly moisten the soil, but allow all that is superfluous to escape before screwing the lid on. A few holes may be bored in the sides, but these should be protected with large and strong pieces of perforated zinc, or rats may prove very injurious. The case when complete must have the directions painted legibly upon it, also with the request that it be placed in a cool portion of the hold, and the plants will need no attention whatever during the voyage. We heard recently of a consignment of Roses sent in this manner to Australia, which arrived in excellent condition. You will, we presume, send them by steamer and not by a sailing ship.

Arranging Pipes (*Rosa*).—In consequence of the great numbers of letters we receive pertaining to such a diversity of subjects it is next to impossible for us to keep in mind the particulars of a case conveyed in a former letter, and as it is our practice to destroy questions as soon as they are answered we have nothing to refer to. You ask "how many through pipes for steam" you should have? We presume you mean pipes with troughs on them for holding water. So far as we remember your case one would be ample, and even it would not need to have water in it always, as quite sufficient moisture would be provided by syringing the house and damping the walls and paths. The pipes will do very well placed side by side, the flow rising gently from the return falling steadily to the boiler. If the incline is very great a continuous evaporating trough the entire length would obviously be of little use, and it would be better to have some moveable zinc troughs about 4 feet long, for fixing on the pipes when and where required. The pipes may be

fixed 3 or 4 inches below the grating, and with sufficient heating surface which, though involving a little extra outlay in pipes, is in the end always economical owing to the saving of fuel, the path would never be too hot for walking over. If there is a possibility of water rising in the stovehole you may have the pipes almost close to the grating, while if the danger is imminent you had better, perhaps, consult a competent person who has had experience in heating with pipes below the boiler. We know of a nursery where much of the piping is so arranged, and the entire system works smoothly and satisfactorily. We, however, do not advise its adoption except in a case of necessity.

Climbers for Conservatory (*N. S., Beckenham*).—Presuming the house is lofty and you desire plants to cover roof space quickly and produce pendent sprays of flowers, you will find the following suitable—*Tacsonia Van-Volxemi* and *T. exoniensis*, *Passiflora rubra racemosa* and *P. Empress Eugénie*, with *Cobæa scandens variegata*. A little less vigorous, but not less beautiful, are *Clematis indivisa*, *Rhodochiton volubile*, *Mandevilla suaveolens*, red and white *Lapagerias*, *Lonicera sempervirens*, and *Cestrum aurantiacum*. Effective for pillars are *Bougainvillea glabra*, *Habrothamnus fascicularis*, *Rhynchospermum jasminoides* and *Solanum jasminoides*. *Swainsonia Osborni* requires a light position, and is dwarf in comparison with many of the others. It is never easy to answer a question of this kind satisfactorily without some information relative to the height of the house and the number of plants required. We cannot usefully recommend many plants for a wall without knowing its height, also its length, or the number of plants it will accommodate. If the wall is inside a conservatory in which the roof is to be heavily festooned with climbers, few flowering plants will succeed, owing to the absence of light, and the best would be *Camellias*. An evergreen surface without flowers is afforded by *Ficus repens*. Roses suitable for a lofty corridor such as you describe are *Gloire de Dijon*, *Reine Marie Henriette*, *Maréchal Niel*, and *Cheshunt Hybrid*. You had better confine the roots of tender plants to an inside border. We are quite willing to refer to the subject again if you need further information and will supply us with the particulars suggested.

Names of Plants (*P. C. Thorne*).—The plant is *Solanum jasminoides*, a South American species, which was introduced about 1838. An engraving of a flowering shoot, with full description, was given in this Journal, No. 945, May 8th, 1879, page 345. The number can be had from this office post free for 3½d. in stamps.

COVENT GARDEN MARKET.—JANUARY 2ND.

OUR market has been quiet since the holidays, but prices all round have been firmer. The supply of hothouse Grapes has fallen off somewhat.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples	½ sieve	1 6	to 5 0	Nectarines	dozen	0 0	to 0 0
"	per barrel	0 0	0 0	Oranges	do 100	6 0	10 0
Apricots	box	0 0	0 0	Peaches	dozen	0 0	0 0
Chestnuts	bushel	10 0	0 0	Pears, kitchen ..	dozen	1 0	1 6
Figs	dozen	0 0	0 0	" dessert	dozen	1 0	5 0
Filberts	lb.	0 0	0 0	Pine Apples English ..	lb.	2 0	3 0
Cobs	per lb.	1 4	0 0	Plums and Damsons ..		0 0	0 0
Grapes	lb.	1 6	4 0	Strawberries	lb.	0 0	0 0
Lemon	case	15 0	21 0	St. Michael Pines ..	each	2 6	8 0
Melons	each	0 0	0 0				

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes	dozen	2 0	to 4 0	Mushrooms	punnet	1 0	to 1 6
Beans, Kidney ..	100	1 0	0 0	Mustard and Cress ..	punnet	0 2	0 0
Beet, Red	dozen	1 0	2 0	Onions	bushel	2 6	3 3
Broccoli	bundle	0 9	1 0	Parsley	dozen bunches	3 0	4 0
Brussels Sprouts ..	½ sieve	1 6	2 6	Parsnips	dozen	1 0	2 0
Cabbage	dozen	0 6	1 0	Potatoes	ewt.	4 0	5 0
Capsicums	100	1 6	2 0	" Kidney	cwt.	4 0	5 0
Carrots	bunch	0 3	0 4	Rhubarb	bundle	0 4	0 0
Cauliflowers	dozen	2 0	3 0	Salsafy	bundle	1 0	0 0
Celery	bundle	1 6	2 0	Scorzonera	bundle	1 6	0 0
Coleworts doz. bunches		2 0	4 0	Seakale	basket	1 0	2 0
Cucumbers	each	0 4	0 0	Shallots	lb.	0 3	0 0
Endive	dozen	1 0	2 0	Spinach	bushel	2 6	3 6
Herbs	bunch	0 2	0 0	Tomatoes	lb.	0 3	0 10
Leeks	bunch	0 3	0 4	Turnips	buuch	0 3	0 0
Lettuce	score	1 0	1 6				



A RETROSPECT OF THE HOME FARM FOR 1883.

ACCORDING to custom the home farmer's agricultural year begins on October 1st, therefore our observations will commence with the month of October, 1882. In this instance it was quite an unusual period, especially for Wheat-sowing; in fact, after the 20th of October and the great storm which occurred about that time, and until the 20th of February following, it may fairly be said that there was no Wheat season or seed time on strong and flat lying soils. The heavy rains and floods continued almost without intermission until the date above-named in all parts of the kingdom, but more especially in the western and north-western counties. All the Wheat sown after October 20th suffered more or less from a deficiency in plant, and to such an extent that we have no exact parallel for more than fifty years.

But the nearest approach to the difficulties of our seed time for Wheat occurred in the year 1841. There was, however, this difference, that the heavy rains commenced in and through the month of September, and continued until December 14th following, with only intervals of a day or two of fine weather. In consequence of the deficiency of plant large areas were ploughed up after the seed time in January, 1883, and in some instances resown with Wheat, which generally gave but a poor yield of grain. Upon referring to the reports from various districts of the kingdom we find that more than 6½ inches of rain fell in October, 1882, which is double an average fall; also in the following months, including February, the fall of rain was considerably over the average.

It is interesting to trace the weather and its effect upon the Wheat crop from that time up to the harvest. Our record shows that the months of March and down to June inclusive were of a dry but cold character, but the end of June and July was wet and the Wheat suffered accordingly. Fortunately the early part of the month of August in the southern and south-eastern counties was both dry and hot, and to this circumstance we owe the good quality of our Wheat, which is noticed as being very bright and heavy in weight wherever it was harvested in good condition, but the northern and north-midland districts suffered much from the continuous rains which followed, and serious losses occurred in various districts. It is generally thought that the reports of the crop given in on the edge of harvest were, and may be accepted as near the truth as possible. In summing up the reports it must, however, be remembered that the general results were Wheat under the average; Barley, average, but of doubtful quality; Oats, the crop of the season, over average and of good quality; Beans and Peas both over the average; Rye, Vetches, &c., have also yielded well.

The seed time for all the green and catch crops, whether required for feeding or soiling cattle, was favourable, it being concluded before the rains commenced, which destroyed the seed time for Wheat; but the spring months being dry made it favourable for feeding sheep on the land. The crops of Clover and field grasses were under an average. The same may be said of the pastures and parklands, the only exception being irrigated meadows. The haying season was, however, very tiresome and disappointing, and, excepting in a few instances, the hay crop was more or less damaged throughout the western and midland districts. Owing to the forcing rains of July, however, the second growth, whether for hay, feeding, or ploughing, proved abundant. The fine weather in August also proved favourable, and much second growth of hay was made in better condition than the first cutting.

Reports of the root crops, whether Mangolds, Carrots, or Turnips, also of Cabbages and Kales, in general concur in representing them as a good average, although in some of the northern counties and Scotland, where the seedtime is earlier, it was rather prejudiced by the dry weather having continued too long for the benefit of the young plants. The growth of Potatoes, both early and late, has been most abundant and the tubers of fine quality, and it has been quite the exception to find that the disease has injured the produce.

All the green and catch crops have proved most abundant, as also the grass in the meadows and parklands, also on the chalk and limestone hills, which has turned out very favourably for the breeding flocks of sheep. The evidence on this is suggested by the high range of prices at which sheep sold at all autumn and summer fairs, and such a value as will have left but little profit to the vale farmers who purchase them for winter-fattening on the dry and mixed soils of the southern, home, and eastern counties. The abundance of grass in the pastures of nearly every district in the kingdom has also made the demand for cows and calves unusually great, and they were dear and scarce in consequence, and had not the hateful scourge of foot-and-mouth disease interfered with the dairy farmer's projects, the produce of dairies would have been far beyond the usual average.

The milk trade has been good all the summer, particularly in those cases where the farms and pastures are situated near towns and railway stations. The same applies to butter-making dairies, for these have paid well, and perhaps better than by the sale of milk, especially in those cases where the butter makers thoroughly understand the making, and have also the advantage of the late improvements in machinery and implements necessary and connected with the best process of making up the butter. This part of the subject is very important to the home farmer, particularly in pasture districts, or even on arable farms favourable for the production of green crops, roots, and ensilage. A well-managed suckling dairy is the most profitable of all the

dairy practices upon farms distant from towns where the sale of milk and butter is not convenient. The home farmer should remember that the labour bill is at present the greatest obstacle in all parts of the farming business; now with a dairy of good milking Shorthorn cows, with calves well selected for suckling, will prove more profitable than any other system of using dairy produce upon outlying farms. When well managed the labour is very little, and the cows will last longer in milk than they do either in butter-making or milk-selling, owing to the careless manner in which hand-milking is frequently carried out.

The selection of calves is of importance, and it is from the southern and western counties from which they should be obtained, for our own experience has taught us that Devon calves are the best for quality and light weights for veal. The Herefords and Sussex calves are the best for general profit and heavy weights, but the Shorthorns are beneath those named for quality. We advise the breeding and rearing of all the horned cattle required upon the farm as the best security against the foot-and-mouth disease, for in case the dairies are made up by the purchase of animals at the local markets it is extremely difficult to avoid contagion whilst this disease is rife in the country. When, however, all the cattle for milking or butter-making dairies are bred on the estate, and intruders of different callings are forbidden approach to the yards and premises, the disease will be generally avoided. To illustrate the truth of these observations the reports state that at present the counties of Cornwall and Devon are free from this disease, whereas the eastern counties are seriously affected; the former being for the most part breeding districts, and the latter, where mixed or arable farming prevails, the cattle are often obtained by purchase from distant parts and largely from Irish importations. We may here caution the home farmer not to believe the various stories about this disease being spontaneous or even epidemic, for in every instance it is due to contagion, although it is so subtle that the cause cannot in every instance be traced to its true source. It is correct to assume that after all our serious losses and experience contagion is the only means by which this disease can be propagated.

Tillage and cropping on the home farm, as well as the management of pasture and parklands, have received particular attention in this Journal during the past three years under various headings, including "Stock-farming" and "Manuring by Ploughing-in Green Crops." We will, to support our experience and practice, refer to the observations of Mr. Clare S. Read, late member for Norfolk, who said at the meeting of the London Farmers' Club lately: "What my friend Mr. Carington Smith may say about the advantages derived from turning arable land to grass in Staffordshire, I have not the slightest doubt myself that if an acre of land is put down to grass in any of the East Anglian counties that we should lose the production of corn now it is under the plough, and we should not at any rate get any more but rather less meat from it than we do at the present moment; therefore, one of the great things to do to increase the number of stock in the kingdom would be, if possible, to make arable land pay better than it does now. That, I am afraid, is rather a difficult matter."

Here we must observe it has been our endeavour for several years past, by alterations and combinations of systems on every opportunity, to show in this Journal and to illustrate some of the points worth the serious attention of the home farmer. The reporter of Hampshire farming states:—"Depression in agriculture still prevails, and has been caused to a great extent by adverse seasons; but the leading rent-paying crops after all are Wheat, Barley, Oats, and other sale crops according to the soil. Large crops are therefore a necessity both in acreage and acreable produce, and form the chief point worth the attention of the home farmer. When we consider that rent, tithes, and rates are comparatively fixed charges, and will be best met in the future by increased acreages of sale crops, it makes all the difference whether only half the tillage land is cropped or extended to two-thirds, for the fixed charges are the same in either case. Again, it is worth inquiry what real gain the sheep contribute to the farm; for although they are said in some cases to pay the rent, let it be fairly calculated what remains as a commercial profit after having charged interest on the large capital employed and the heavy charges of labour directly and indirectly attendant upon sheep-farming. It ought further to be considered that large outlays in feeding materials are made where sheep are said to pay the rent, accompanied by a reduced acreage of the rent-paying crops, delays of seed time, extra tillage required, the losses of stock which cannot always be controlled, and finally the consumed, or commercially speaking sold to the stock even at a very low price, nothing is left but the manure on the land, and after estimating this, in a comparison

with other systems of cropping, it shows that we can obtain or buy manure cheaper than the sheep can make it. In conclusion, it is by comparison only that just estimates of anything can be made, let it be made between sheep-farming and ploughing-in green crops as manure for the production of corn and other sale crops."

It must be admitted that these are practical remarks worth attention both by the landowner and home farmer. If we notice in almost every district sheep-farming is almost entirely pursued by men of capital who are fond of the pursuit, in fact frequently make it a hobby and are prepared to lose or win by it. The home farmer must, however, be prepared to preface his accounts by a good system, and submit them with a good balance of profits.

Much stress has been laid upon the subject of stock *versus* corn, as it has been fashionable during agricultural depression to assert boldly that corn does not pay, and that stock only is worth the attention of the farmer. Sir J. B. Lawes in a letter to the *Times* a short while ago, under the heading of "Modern Farming," says—"So certain was I that corn-growing as the main source of profit in farming could no longer be depended upon, that about ten years ago I began to lay down my arable land in permanent pasture, and at the present time one-half of my farm is grass." Farther on he says—"Stock, however, as the main element of farming, requires a large amount of capital; corn can be grown by means of artificial manures with very little capital. Granted that stock-farming is profitable, exclusive of the risk of disease, what is the value of that risk? I should be very sorry to advise any young man who had a few thousand pounds in his possession to embark in farming. I should say to him, You cannot farm profitably without stock, and some disease, which all your precautions cannot prevent, may cripple your resources at any moment."

In thinking over these first observations we are struck forcibly with the assumptions contained in them without any practical comparison being made to support them, not even by calling attention to the fact that all or even a large portion of arable land cannot be made into good permanent pasture, Mr. C. S. Read's statement to wit. In the other observations he says that so large an amount of capital is required that the risk of stock-keeping is too great. Now this is a strong corroboration of our opinions; but he makes no comparisons to justify the different conclusions at which he arrives by assuming that corn-growing cannot be made to pay, and therefore encouraging the fashionable delusion which prevails. Our objections refer principally to sheep-farming and the folly of laying land into grass not possessing sufficient staple for its success. We quite believe that, setting the foot-and-mouth disease aside, cattle may be made profitable upon ordinary park or pasture land by dairy cows kept either for milking, or butter-making, or suckling purposes; also that upon rich grazing land bullocks can be fed with advantage, but under any circumstances it is safer to breed the whole of the stock required on the farm.

In conclusion we are aware of the great intelligence, industry, and perseverance required by the home farmer to successfully grapple with all the difficulties of the times and circumstances of soil and climate by which he is surrounded; and in the absence of any specific calculation supporting the opinions in all their variety as given by different authorities which if attempted will prove unreliable, because it is practically impossible to make comparison in figures.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1883. December.	Baromet- er at 32 ^s and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.			
Sunday 23	30.246	40.2	37.3	W.	42.0	49.5	39.4	60.4	36.0		
Monday 24	30.533	45.2	45.1	S.W.	40.9	48.5	33.4	49.8	28.0	—	
Tuesday 25	30.603	42.4	42.4	N.W.	42.3	43.1	42.1	48.2	42.3	—	
Wednesday 26	30.585	39.3	39.2	Calm	42.3	42.6	37.6	42.5	39.0	0.010	
Thursday 27	30.449	36.4	36.4	Calm	42.1	42.2	36.1	42.3	37.7	0.010	
Friday 28	30.343	41.0	40.0	N.W.	41.6	43.3	35.3	45.3	37.2	0.012	
Saturday 29	30.288	38.7	38.6	Calm	41.7	43.4	38.2	43.2	38.8	0.010	
	30.436	40.5	39.9		41.8	44.7	37.4	47.4	37.0	0.042	

REMARKS.

23rd.—Fine day; rather thick in evening.

24th.—Cloudy and rather dull all day; fog in morning.

25th.—Foggy, dull, and damp.

26th.—Cooler, but foggy and dull.

27th.—Fog all day.

28th.—Dull and damp.

29th.—Overcast, cold, and damp.

A dull damp week with very little wind, scarcely any sun, and remarkably small range of temperature.—G. J. SYMONS.



10	TH	Royal Society at 4.30 P.M.
11	F	Quekett Club at 8 P.M.
12	S	Royal Botanic Society at 3.45 P.M.
13	SUN	1ST SUNDAY AFTER EPIPHANY.
14	M	
15	TU	
16	W	Society of Arts at 8 P.M.

CROTONS.

UNDER the name of Crotons we have a number of plants which must be familiar to everyone connected with horticulture, since their cultivation has become universal. Crotons are included in the natural order Euphorbiaceæ or Spurge-worts, and in horticulture they form a very important section of the class termed "Ornamental Foliage Plants." Perhaps the greatest proof—if proof were wanting—of the beauty of these plants and their sterling worth is to be found in the extraordinary manner in which, during the last few years, they have been developed; for whereas about fifteen years ago only about half a dozen were in cultivation, now upwards of a hundred can be enumerated, and it should be borne in mind that this great increase of variety is not the result of a selection from a batch of seedlings, as is the case with Gloxinias and Begonias, but by far the greater number have been introduced into this country from their native habitats.

Most of the varieties are natives of the South Sea Islands, a few come from the East Indies and Jamaica, while lately several have been imported from New Guinea and Borneo. The remainder are garden hybrids, the result of the handiwork of the horticulturist. It is worthy of note that these latter hybrids are in no way inferior to those introduced from abroad—in fact, it is a matter of opinion whether the variety known as Queen Victoria, which was raised at the Victoria and Paradise Nurseries, Upper Holloway, London, and was the first garden hybrid, is not the best variety in cultivation. Certainly Her Majesty is very popular, and deservedly so. Crotons, then, during the last few years have grown so much in favour generally, and so many varieties of different character and various degrees of excellence have been introduced to cultivation, that they are now regarded as indispensable to the exhibitor and horticultural decorator. These plants present a beautiful combination of colour and elegance such as is not to be found in any other class of plants, and if we require proof of this I need only remark that there is scarcely a horticultural show throughout the country where Crotons do not hold an important position. It does not matter whether it be in the class for a given number of fine-foliage plants, or a given number of foliage and flowering plants, or in the class for table plants, or in groups of plants arranged for effect, in each of these cases they are found to be so thoroughly effective as to render it entirely out of the question to do without them.

Three sizes of plants are required for the above purposes—viz., large specimen, medium, and small, and these three sizes will be found suitable for almost all decorative purposes for which tender plants are available. Presuming, then, that Crotons are of so much value for exhibition and decoration, a few remarks on their general culture may not be altogether out of place. Crotons being natives of hot countries, it will be apparent that they require the temperature of a stove to grow them satisfactorily; but it is not

well to keep them in too strong heat. I find that 65° by night and 70° by day, allowing the temperature to rise 10° or 15° by sun heat, with plenty of moisture in the house, suits them admirably. They should be syringed twice a day during the spring and summer to keep down red spider, and slightly shaded from the sun for four or five hours in the hottest part of the day during the months of June, July, and August. When it is not possible to devote a house to them entirely they should be placed together in a light part of the stove and as close to the glass as possible to insure their colouring well. I have heard it remarked that Crotons require starving to bring out their colours properly, but this is altogether a mistake. I am no advocate for starving, and if the term is admissible in gardening at all it certainly should not come under the head of "Cultivation of Crotons." So far, then, from starving Crotons I recommend growing them in a rich compost, and I find the following suits them well:—Two parts good fibrous loam, one part best Hampshire peat, and one part well-decomposed leaf mould, with a little silver sand to keep the soil open, and the addition of a small quantity of Clay's fertiliser, say in the proportion of a 5½-inch potful to a wheelbarrow load of the compost.

Assuming that we have the proper soil and accommodation for cultivating these plants, we will begin with their propagation. Crotons are propagated from cuttings, which strike freely at almost any season of the year; but perhaps the best time is in the autumn and winter, when the wood is matured and growth less free. Cuttings inserted in sandy soil singly in thumb pots and plunged in bottom heat of about 80° to 85°, and covered with a bellglass or handlight, will generally root in about three or four weeks, and as soon as rooted should be gradually exposed to the temperature of the ordinary house. When the pots are filled with roots the young plants should be shifted into 4-inch pots and plunged into a gentle bottom heat, but without being covered with bellglass or handlight, and in a fortnight or three weeks we shall have healthy little plants well established.

Now comes the question, For what purpose are the plants intended? Are they required for large specimen plants for competition, or medium-size plants for general decoration, or small table plants? It will be imperative to decide these questions and to cultivate accordingly; for, although the same temperature and soil will suit in either case, yet the treatment in some details will differ very essentially. We will suppose, then, for our first example that large specimen plants are required, and will select Baroness James de Rothschild, a variety of the broad leaf section, and Disraeli, a variety of the trilobe section. Both of these are robust growers and well adapted for specimens, yet requiring different treatment in some respects from such varieties as Hawkeri and interruptus aureus of the medium and narrow-leaf sections.

Having clean healthy plants, and supposing it to be the month of February, they should be shifted into 6-inch pots, and as soon as they have each about six leaves the points of the shoots should be pinched out to induce them to produce side shoots. When these have grown a good length, and the pots have become full of roots, which will be in about two months, shift the plants again into 9-inch pots, and when they are well established in these the points should be again pinched out to induce more breaks. As soon as these pots are filled with roots, which will be in about two months, the plants should be transferred into 12-inch pots, and, if necessary, the points of the shoots may be again pinched; but if there are about a dozen shoots no more pinching will be required, as this number will be sufficient to form the basis of a specimen plant.

The object now is to induce strong healthy growth and large leaves, which I venture to say are more effective and desirable than a multitude of small shoots, and, consequently, small leaves. The plants should be kept growing steadily through the autumn and winter, and the shoots tied out

and trained into position, and about the month of March should have another shift, this time into 16-inch pots. The plants should be allowed to grow on naturally, and by the autumn we shall have healthy, vigorous, well-coloured half-specimen plants. It may now be advisable to give the plants a top-dressing of rich soil to assist them through the winter, and in the following spring they should have what I shall term their "final shift"—viz., into 18-inch pots, and if the plants have been grown on without a check by July or August they will be 6 feet to 7 feet high and 5 feet through, and ready to take their place in the exhibition. This process will take about two and a half years.

I have chosen the broad-leaved varieties for my examples, as they are more difficult to grow into large specimens than many of the narrow-leaved varieties; but, if treated in the way indicated, they make specimens in much less time than the narrow-leaved forms, such as *Warreni* and *interruptus aureus*. These should have the same treatment generally, but they will not require potting so soon in succession, nor will they want pinching, as they branch freely and make more handsome plants if allowed to grow naturally.

Having said so much on large specimens, I will now offer a few remarks on medium-size plants. Let us suppose, then, that we have healthy plants in 4-inch pots, as in our first example, and the season is the month of February; they should be potted first into 6-inch pots, and when these are moderately filled with roots, say in six or eight weeks, the plants should have their final shift—viz., into 9-inch pots. The principal object in giving them their final shift while yet small plants being to induce them to make plenty of roots in advance of growth, which will consequently be free and vigorous. They may then be allowed to grow naturally, or may have all side shoots removed as they appear, and simply grown on single stems as columns. *Crotons* grown in this latter style are, in my opinion, more thoroughly effective and elegant, as well as generally useful, than when grown in any other shape, and most of the varieties may be grown in this style, although some are better adapted for it than others. Such sorts as *Warreni*, *Princess of Wales*, *Prince of Wales*, *Johannis*, *Sinitzianus*, *Anietumensis*, and *Rodeckianus* of the long narrow-leaf section, and *Evansianus*, *Baroness James de Rothschild*, *Morti*, *Bachi*, and *Variegatus elegans*, of the broad-leaf section, make superb plants grown on this system. I have had *Warreni* with leaves fully $2\frac{1}{2}$ feet long, and *Baroness de Rothschild* and *Evansianus* 6 feet high, without losing a leaf.

For table plants the pots should not exceed $5\frac{1}{2}$ inches in diameter, and the narrow-leaved section are the most suitable.

Crotons, like *Stephanotes*, *Gardenias*, and most other stove plants, are subject to that worst of all pests, mealy bug, as well as thrips and red spider; and in coping with these I advise working, as far as possible, on the principle of "prevention better than cure." Red spider may be kept down in a great measure by the free use of the syringe; but more harm to the plants is to be apprehended from these insidious little insects than from thrips or mealy bug, as they sometimes attack the young growth, checking the plant and causing the young leaves to fall off before we are aware of their presence. Hence the need for constant watchfulness. Red spider is easily destroyed by painting the hot-water pipes with sulphur and heating them very hot, but great care must be exercised when this remedy is resorted to, as, although it is not injurious to *Crotons*, yet it is fatal to many delicate plants, particularly some *Ferns*, *Adiantum farleyense* for instance.

On the least appearance of thrips the plants should be fumigated immediately, as these insects rapidly increase, and a stitch in time often saves nine. The fumigating should be done carefully two evenings in succession. Mealy bug is the worst pest to which *Crotons* are subject, and we all know of a dozen or more of so-called remedies, such as Gishurst compound, Abyssinian mixture, Fir tree

oil, &c., but I am not acquainted with any remedy which is in every respect satisfactory. Paraffin oil, of which we heard a good deal, is no doubt a fairly good remedy if mixed with water in the proportion of an ordinary wineglassful to three gallons of water. This must be thoroughly mixed and kept well stirred while it is being syringed on to the plants. It should be allowed to remain on the plants ten minutes, and then syringed off with clean water. I recommend this remedy for large plants only, and where they cannot well be dispensed with, small plants should be sponged with clean water.—H. RANGER, *Aigburth Nurseries, Liverpool*.—(Read at the December meeting of the Liverpool Horticultural Association.)

NOTES FROM A SCOTTISH GARDEN.

A Mild Winter.—From all parts of our "north country" we hear of the unusual mildness of the present winter, mavis singing and spring flowers blooming as if it were the month of March instead of New Year's day. In our garden it has been possible to cut a few *Roses* at any time, both *Teas* and *H.P.'s*. *Mignonette* is fresh and good, *Schizostylis coccinea* finer than it has been for several years, *Salvia fulgens* glowing, and *Vesuvius Pelargoniums* in vases covered with trusses—small, indeed, but wonderful for the 1st of January. The *Strawberry Trees* are now in full blossom, also the common tree *Ivy*, and the sweet *Laurustinus* has, after the lapse of several years, yielded a profusion of trusses which are now opening their flowers. In the borders and on the rockery *Iberises*, *Primroses*, &c., have met the late *Asters*, *Violas*, and *Pentstemons*. Everywhere the spring flowers are moving. *Sisyrinchiums* are several inches above the soil, *Crocuses*, *Daffodils* and *Snowdrops* are peeping above ground, *Doronicums* are showing their buds, and in the frames the *Auriculas* and *Polyanthuses* are starting. Among the fruit trees the *Black Currants* are showing their light-green whitish buds very prominently. *Raspberry* buds are also swelling.

Tillandsia Lindenii.—We have had a plant of the above in bloom for the past two months, and although in colour not so dark as those that are called the best varieties, its light blue and white flowers are very pretty. The plant in question produced a central spike which flowered first, and half a dozen side spikes which are now flowering. The plant is blooming in the 4-inch pot in which it was struck from a cutting.

Aphelandra aurantiaca.—This is another not commonly grown stove plant which flowers at this season. It is best propagated from seed which, sown as soon as ripe, and the young plants attended to, produce good strong flowering plants the following winter. They do well in 4-inch pots, and may be grown in turfy loam.

Eucharis amazonica.—Is there any necessity for resting *Eucharises*? With an abundant supply of heat at command we have kept the plants growing freely, and we are never without flowers; not, of course, a great number at one time, for that is not required for home use, but a sufficient number for our needs.

Pancratium speciosum.—With this lovely plant we are adopting the same mode of culture. It seems as if it could enjoy any amount of heat all the year round. With plenty of heat to keep root growth active, the present is a good time to repot this *Pancratium*, which does well in turfy loam with good drainage to the pot.

Carnations.—There are some flowers which a gardener can hardly produce in too great a quantity, and amongst these are *Carnations*. Miss Joliffe is the beau ideal as to habit and floriferousness of what a good winter-flowering *Carnation* ought to be; it is also a pleasing shade of light rose. An equally good white would be of great value. Will any of your correspondents be kind enough to name a white *Carnation* they have proved to be free-flowering throughout the winter months, and which produces cuttings freely for propagating at this time? We do not want the flowers large but plenty of them.

Late and Useful Chrysanthemums.—The *Chrysanthemum* season has been a very good one and the bloom prolonged. *Fair Maid of Guernsey* we have still in quantity, and late-struck plants of *Ethel* are not yet in flower. This variety requires a little heat now. *Fair Maid* has been the best white of the season, both the flowers from side growths and the terminal ones being good. Unlike *Elaine*, which turns pinkish with age, this variety retains its purity for a long time. *Lady Selborne*, about which I sent a note last year, has also the same good property. We cut the last

of this kind, good blooms, in the last week of December. I do not find any varieties so much liked as Mrs. G. Rundle, Mrs. Dixon, and Mr. G. Glenny. Madame Desgranges is an excellent early white. Julie Lagravère is yielding a good supply of blooms now.—X.

GROWING PEAS IN POTS.

A DISH of Green Peas is always most acceptable even in the season of their abundance outside, but more especially are they esteemed early in the year—that is, during April and May. A good dish sent to table at this season will always give pleasure and satisfaction. Although to produce them in any quantity thus early requires considerable space and rather more than ordinary care, some gatherings may be obtained by those having two or three Peach houses or vineries. The best way to grow them is in pots. The first batch should be sown at the beginning of October; use 8-inch pots and provide ample drainage. The soil should consist of three parts loam and one part manure, with the addition of some burnt refuse. The quantity of this will depend upon the nature of the loam. If heavy use it liberally; if light not much will be required. Press the soil into the pots rather firmly, about three parts filling them, then sow twelve peas in each pot, distributing them evenly over the surface; cover them with soil, which should not be pressed down until after the peas are up, when with the addition of a little more soil the surface should be made firm. We find the plants are less liable to damp off when the surface is firm.

When the seeds are sown place the pots in a cool airy position, a shelf along the front of the early Peach house will suit them well; here the Peas will germinate and grow 2 or 3 inches before the time comes for starting the house. In this position they may remain, and be allowed to come on with the Peaches, and if carefully attended to a gathering may be had from them about the end of April or beginning of May. Another batch should be sown at the beginning of December and placed in a light position in a Peach house or vinery that is just being started. Several successional batches should be sown at intervals of a few weeks, according to the space at command.

We sow fifty pots at a time, and generally obtain several good gatherings from each batch. Great care should be exercised in the watering. It is better to err on the side of giving too little than too much, as if the soil becomes very wet damping-off and mildew is sure to be the result. On the other hand, if kept too dry the blossoms will turn yellow and fall off before expanding, but if the pots have been properly drained either of these evils will be easily guarded against. The young plants should be supported by some twiggy sticks before they begin to fall about, or four sticks may be inserted round the sides of the pots, and some pieces of matting strained round them. As the plants grow allow room enough for the air to circulate freely amongst them at all times. More especially is this desirable when they are in flower, as it will materially assist the setting. As soon as the pods commence swelling assist them with a little guano water or Clay's fertiliser, but do not use either strong. Many tender forced plants are spoiled by the use of stimulants, because they are used too strong. A handful of guano to a four-gallon can of water is sufficient, and a teaspoonful of Clay's fertiliser to an 8-inch pot sprinkled over the surface of the soil twice a week will soon have a beneficial effect.

Mildew is often very troublesome, and should be attended to immediately it makes its appearance by dusting the affected parts with flowers of sulphur. This can be done without smothering the plants with it, as is sometimes seen, giving them an unsightly appearance. If carefully applied to the upper and under sides of the foliage where the mildew has shown it will soon have the desired effect.

Varieties.—We used to grow McLean's Little Gem, but American Wonder sent out by Messrs. Sutton & Sons will quite supersede it, as it is much dwarfer and earlier, it is also a good setter, the pods invariably being well filled, and the quality excellent.—A. BARKER, *Hindlip Gardens*.

SCOLIOPUS BIGELOVIL.

THE plant shown in fig. 4 is a member of a very remarkable new genus. It was found by Dr. Bigelow at Tamul Pass, Marin County, not far from San Francisco, and is, I believe, confined to that locality. It was first put at the end of Melanthaceæ, but in Hooker's "Genera Plantarum" has been placed between Clintonia and Medeola in Liliaceæ. Although it is now some years since it was first introduced it is as yet very rare in this country.

It flowers early in April and May, the number of blooms being invariably eight in different stages of development. The flowers are beautifully crisped, not unlike *Nerium crispa*, and vary from a dull greenish to a bright showy purple, regularly interspersed with dark

spots, often merging into blotches. The outer segments are about an inch long, nearly half as broad, and widely spreading. The inner ones are about the same length, very narrow and erect, but variable. The leaves are from 6 to 8 inches long and half as broad. They are very suggestive of *Veratrum*s, and only differ from them in having the veins on the under surface narrowly winged, both sides being sprinkled with minute purple dots, making them very attractive.

The plant is perfectly hardy in our climate, and only requires to be



Fig. 4.—*Scoliopus Bigelovii*.

known to be generally cultivated. It should be planted in a peaty soil in a partial shady position, with much the same treatment as that given to *Trilliums*. A coloured plate appeared in the "Gartenflora" for 1875, which, however, was from a plant in a pot, and does not do it anything like justice. It is well grown by Mr. T. S. Ware of Tottenham, and the above figure was drawn from a plant that flowered in his nursery last year.—M. S.

SPECIAL SOCIETIES.

MY only object in writing the note (page 549, last vol.) to which Mr. Douglas took exception last week was to express, what is the opinion of myself amongst numbers of other growers, that the results effected by these special societies are by no means equal to the expenditure incurred. A few who have made a speciality of such plants would have continued to grow them with equal ardour had no such societies been called into existence, and these reap nearly all the advantages—that is, they are almost assured of gaining a certain number of prizes every time they exhibit, because they know the exact strength of what few competitors appear. The only conclusion that can be drawn is what I have previously stated—namely, that the prizetaking is practically a monopoly. I have frequently seen and admired the flowers exhibited by Mr. Douglas at the Auricula and Carnation shows, and no one, I am sure, would begrudge him the honours he has won, and several other deservedly noted growers could be named with him. But that is not enough. A society with the title of National should be of national utility, and I fear that such is not the case with either of the three societies named. Perhaps, however, Mr. Douglas can bring forward conclusive evidence that the Pelargonium, Auricula, and Carnation Societies have during the period of their existence really increased the number of growers and admirers of those plants to

an extent at all commensurate with the outlay. If he can I shall be glad to see that their efforts have been more successful than I at present believe to be the case.

With regard to the schedules which the Editor has kindly forwarded to me from Mr. Douglas, I wish to ask, What is the reason why, in the classes for single specimen Auriculas, one grower is allowed to take all the prizes offered? Indeed, as I understand it, it is quite possible for one exhibitor to take all the prizes in all the sections of this class. Does your correspondent think this is exactly right?—X.

MOSS AND LICHENS ON APPLE TREES.

THE chief cause of this is simply a damp situation, the fruit trees being surrounded by taller trees which never allow the branches to become dry for months together. I have just examined a large number of trees covered by the above which were blown down by the late gale. They have fine, clean, healthy-looking roots close to the top of the soil, which is deep and on limestone; the roots and soil on closer examination appear to be mouldy and sour.

The branches of every tree must be thinned and shortened, the roots well manured, and just before the blossom opens syringe with soft soap and petroleum. This destroys the blight and vermin as well as moss, and will insure more and finer fruit. High trees are very baneful to orchards, often destroying what they were planted to protect.

I have pruned no fruit trees since cutting the breastwood to admit the sun to ripen the fruit, and I do not intend to prune my standards at all this season, as all have had the centres cut out and been root-pruned recently. Fruit trees will suffer very much this winter from the mild wet weather, unripe wood, soft buds, and early show of bloom. I have never noticed any harm from late or spring pruning. Early pruning and a mild winter like this spread disease.

The reason I advise syringing before the blossom opens is to reduce the danger of using the mixture too strong or badly mixed. The unopened trusses are also often covered with vermin, and those are destroyed before they get into the blossoms. The trees should be syringed with clear water before using the mixture.

Gas tar well mixed with water and used like the above is very destructive to the fly on the Pear leaf.—J. E. WAITING, *Grange-over-Sands*



AT a General Meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Henry Little, Esq., in the chair, the following candidates were unanimously elected Fellows, viz.:—Thomas P. Bethell, Viscount Enfield, Sebastian Waterhouse, Rev. Christopher S. Watson.

— WE have received from Messrs. Rivers & Son of Sawbridgeworth fruit of the BIJOU LEMON, a charming little fruit of the size and shape of the Lady Apple. It is quite oblate, with a depressed crown, in the centre of which is a small swelling bearing the style point. The skin is remarkably thin, and the flesh very juicy with a fine brisk Lemon flavour.

— THE eminent naturalist and physiologist, PROFESSOR RICHARD OWEN, has been honoured with knighthood. For many years he has been the chief in charge of the natural history collection at the British Museum, and was one of the principal projectors of the Natural History Museum at South Kensington, but has recently resigned the above charge. This recognition of the services he has rendered is well merited.

— SOME of our readers will learn with regret that the directorate of the PELARGONIUM SOCIETY have brought their labours to a conclusion, as, owing to the inadequate support afforded, arrangements could not be made for another show. They have terminated their work with a money balance in their favour, and some members propose that this be given to the National Auricula and Carnation Societies.

— THE remarkable ABSENCE OF SUN that has been experienced of late has been the reverse of favourable to early forcing operations. In the meteorological report issued last Monday from the Greenwich Observatory, it is stated that the sun re-appeared on Sunday the 6th inst. for the first time since the 23rd ult. The maximum temperature in the metropolis on the same day was 51°.

— AN admirable plant for the winter decoration of the greenhouse, and one rarely met with except in large establishments, is the beautiful *SENECIO GHEISBREGHTII*. It grows from 8 to 10 feet in height, with leaves about a foot long and half as broad, of a thick leathery character.

The flowers, which are borne in large corymbose heads, are golden yellow and very attractive. Small plants in 4-inch pots are useful as decorative foliage plants, thriving well under ordinary greenhouse treatment.

— THE fixtures of the ROYAL HORTICULTURAL SOCIETY OF IRELAND for 1884 are as follow:—Spring Exhibition, Thursday, April 17th; May do., Thursday, May 15th; Summer do., Thursday, July 3rd; Autumn do., Thursday, August 28th; Winter do., Thursday, November 20th.

— PEACHES AT CHRISTMAS.—We are informed that Mr. Lamb, gardener to Sir Henry Pottinger, Bart., The Hermitage, Chester-le-Street, Durham, sent in a dish of Peaches on Christmas day from a tree three years old in a 9-inch pot. It is a new variety named Osprey. The Peaches were medium-sized, rich in colour, and were much admired at the dinner table.

— TWO of the most abundant flowers in Covent Garden last week were *CALANTHE VEITCHII* and *CENTROPOGON LUCYANUS*, of which large bunches were to be seen in several of the principal florists' shops. The first-named was especially fine, the spikes 18 inches or 2 feet long, closely set with large flowers, but mostly rather pale in colour. They were evidently the produce of extremely vigorous plants, and they must be grown in quantity to furnish so large a supply. The old *Centropogon* was similarly strong, but in this case the flowers were remarkably highly coloured, the peculiar deep rose tint being very freely developed.

— OWING to the very mild season HARDY FLOWERS are more plentiful just now than they have been for some years, and lovers of these will have no difficulty in supplying enough for table decoration. The following are flowering in the neighbourhood of London:—*Anemone reginae*, *A. vitifolia*; *Arabises Stelleri*, *albida*, *alpina*, *procurrens*; *Aubrietia olympica*; *Armerias plantaginea* and *longiaristata*; *Coronilla securigera*; *Crocuses laevigatus*, *Imperatri*, *alatavicus*, and *longiflorus*, *Chrysanthemum leucanthemum*, *Cyclamen*, *Cheiranthus Cheiri*, *Galanthus nivalis* (Snowdrop), *Geum pyrenaicum*, *Helianthemum rosmarinifolium*, *Helleborus niger*, *H. foetidus*, *Houstonia cœrulea*, *Ionopsidium acaule*, *Kniphofia sarmentosa*, *Narcissus Tazetta* var. *aureus*, *Omphalodes verna*, *O. verna alba*, *Primula denticulata*, *Polygala Chamæbuxus roseus*, *Potentilla alba*, *Trollius europæa* var., *Viola lutea grandiflora*, *V. odorata*, *V. tricolor maxima*, and *V. hederacea*, *Vaccinium Vitis-Idæa*, *Veronica spicata*. Shrubs—*Chimonanthus fragrans grandiflora*, *Jasminum nudiflorum*, *Discaria longispina*, and *Rosa indica*.

— THE schedule of the INTERNATIONAL HEALTH EXHIBITION to be held at South Kensington this year has been issued, and contains full particulars of the regulations and classes, together with a list of the members of the Council and officers. The exhibits will be classified in two great divisions—viz., health and education. The first including groups for food, oven, the dwelling house, the school, and the workshop, each also containing a number of classes, forty-six in all. Under Education are arranged ten classes to be illustrative of educational works and appliances. The Exhibition will be opened on May 1st, and continue open for not less than six months.

— "THE most FAMOUS TREE IN PARIS is," states a correspondent, "about to disappear—viz., the *Février* or *Gleditschia* of the National Library. It was planted about a century ago on the spot now occupied by the reading-room, and Robinson Crusoe being then in full vogue a legend sprang up that this was the tree on which Selkirk passed his first night on his island. It is believed to have been planted as a tree of liberty in 1789, and was the gift of the English botanist Catesby. In 1859 on the erection of the reading-room it had to be removed 50 yards to the court of the library—a difficult task, for it was 60 feet high, and the expense amounted to 8000 francs. The court after the enlargement of the library is about to be paved, and the tree is to be felled."

— A CORRESPONDENT writes that "Mr. M. D. Thompson, gardener to Lindsay Wood, Esq., South Hill, Shields, makes a special feature of having a good display of FLOWERS AT CHRISTMAS. In his large conservatory (one part exotic the other greenhouse) was a grand display of *Calanthes vestita lutea* and the charming *C. Veitchii*. Of the latter some of the spikes had as many as thirty-five to thirty-six flowers each; these plants were placed at the margin of the central arrangement of the house, and the pendant spikes had a graceful effect, springing from a margin of Ferns and Lycopods. The cooler division of this house is now

occupied with Camellias flowering freely, Richardias, Azalea amœna, Roman Hyacinths, Tulips, and fine Cyclamens. Lily of the Valley was also plentiful, this Mr. Thompson is very successful in forcing. In the stoves we observed Phajus grandiflora growing strongly, while the charming Oncidium obrysatum was showing fourteen spikes. In one of the vineries against the wall is planted Tropæolum Ball of Fire; this has been allowed since the Vines have gone to rest to run down the canes, the consequence is just now that the growths are full of bloom and are as good as Pelargoniums to cut from.

THE GOOD YOUNG MEN OF OLD.

YOUR correspondent "H., Notts," in his retrospect of the last thirty years, pays a very poor compliment to the young gardeners of the period; and as one of them I trust you will allow space for my few remarks in our defence. It occurs to me that "H., Notts," is one of these persons who cling with tenacity to the days of their prime, and who are prejudiced against everything and everybody of the present day. This is evident from his laudatory reference to the writers of old in preference to our modern scribes, whose articles in the pages of the Journal I venture to assert will compare more than favourably with anything that appeared in any gardening periodical of thirty years ago, whether scientific or practical.

Gardening has most assuredly made rapid strides since "H." and his colleagues so assiduously studied the current literature, "not skimmingly, as the young men of the present;" but progress in future must indeed be slow if all "H.'s" assertions be true, which I deny. True, there are many who serve a few years at gardening, but not proving worthy of the calling have to relinquish it; yet the majority of young gardeners are, I hold, a credit both to themselves and their calling, and will in turn prove as good trainers to the future generation as many of the existing staff of head gardeners are of the young men of the present. Perhaps I am wrong; but I maintain that head gardeners are not altogether faultless, and not all of them treat their subordinates as members of their own craft. What a different state of things exists where the head gardener takes his men partly into his confidence and converses freely on horticultural topics, thereby introducing harmony into all the daily duties, and gaining for himself the respect of his young men, in itself an unspeakable satisfaction.

"H., Notts," also refers in tones of high praise to "A Working Gardener's" letter to young men. Granted the advice there given to be good, it carries but little weight unless based on practice. Let "Working Gardener" first practise, then preach. Singing classes are not approved of, but I would say to every young man having an ear for music, Cultivate that taste; it is a harmless pastime and an intellectual recreation. The man who spends one evening in the week at a singing class can, I have no doubt, perform as much dry study in the remaining evenings as another would in a full week. Had "H., Notts," been a musician he would not have written in his melancholy style. I shall conclude with urging my young fellow men to keep on plodding, and read all essays and attend all public lectures they can that tend to their self-improvement.—T. L.

[Our correspondent has no right to insinuate that a "Working Gardener" does not practise what he preaches. He is one of the most skilled and accomplished of gardeners, and his many communications, founded on practice, rank amongst the most useful that have ever appeared in our columns.]

I CANNOT agree with your correspondent "H., Notts," in what he says about the young gardeners of the present day in your issue of the 27th. I fail to see why they should be so much worse than their predecessors. Perhaps when "H., Notts," was a young man the head gardeners were not quite so high in the world as they are now. I hope some of the young gardeners will learn something from your correspondent, but I think he might be a little more lenient, and instead of being harsh give us a hint how he managed to do so well and not go astray. He would then be doing service to gardeners young and old; some of the seed would be sure to fall on good ground, and we should ever bless him. I would like to thank him, also "A Working Gardener," for kindly calling our attention to the state we are drifting into, and I hope before this year is out he will be able to say we are improved.—T. R. M.

STORED-UP SAP IN VINES.

IN justice to myself and those who have supported me in this matter, allow me to place these two passages in juxtaposition in order to show your readers how Mr. Taylor stands now. At page 396 in my first note I said, "It is impossible to reconcile Mr. Taylor's theory of stored-up sap in Vines (p. 372) with facts or common observation, and I believe there are few experienced gardeners who believe that Vines subsist on 'the stored-up food' of the previous autumn till the shoots are 7 inches long and the leaves 5 inches broad, as Mr. Taylor states." In his last note Mr. Taylor says, "Now for the little bit of theory which has caused so much discussion. It is to the effect that the appearances noted above and recorded within inverted commas 'indicate that the roots have commenced action, and that the leaves are no longer dependent on the stored-up food which was prepared last autumn and preserved in the stems for

early use,' True this is pure theory, in which, as far as I know, I am not supported to the full length by any professed physiologist."

For "professed physiologists" substitute "experienced gardeners," which means much the same thing, and Mr. Taylor and I are quite agreed about himself. His words here look very like a confession of error, and an acknowledgement of the correctness of my first words. I beg, however, to tell Mr. Taylor in the most unequivocal manner that he did not advance the above statement of his in inverted commas as a "little bit of theory," but as a *fact* in practice; and instead of saying or admitting that "professed physiologists" did "not support him," he quoted them to prove that they did, and attempted to twit his opponent with ignorance of the latest authorities on the subject. This is Mr. Taylor's true position in this discussion. I regard his last statements as neither more nor less than an ungracious submission to the force of the evidence from several sources which has been brought against him. His latest idea that "the Vine has an economy peculiar to itself" is just as groundless as his other assertions.—NON-BELIEVER.

WILTON HOUSE.

CONTINUING the record of these excellent gardens from page 11, we arrived at a range of pits, in one division of which the most celebrated of the occupants are undoubtedly the Vines "growing without soil." Some persons fail to grow Grapes with whatever soil they are supplied with, others succeed as it were independently of soil. Some of the best Black Hamburgs I ever saw and tasted were grown in a bed of leaves and manure, no loam being used, by Mr. Hunter at Lambton Castle; and now at Wilton I find Vines of the same variety in admirable condition, and produce Grapes of the highest quality without either manure or loam in the border. At the time of planting, a "soil difficulty" having arisen, Mr. Challis resolved to try an experiment. Rather than plant in what he knew was unsuitable soil that was supplied him, he determined to plant a pit without any soil at all. If I remember rightly the compost is as follows:—One-fourth of broken bones, one-fourth of lime rubbish, one-fourth of bruised charcoal, and one-fourth of pounded bricks. If this is not the mixture I shall be favoured by being corrected. In such out-of-the-way material the Vines were planted and the surface mulched with manure. With good attention they made steady solid progress, and have for years afforded fruit superior in quality to all others in the garden. In the same house, on the opposite side of the path, Vines are planted in a border of good Vine-growing soil, and the rods are trained down alternately with the others, but the rods are the finest and hardest, and the Grapes invariably the best that are grown in the soilless border. There is no mistake about this. It is a simple record of facts, and the truth cannot be told in any other way. There is not a particle of sensationalism about it any more than there is in the character of the quiet studious gardener, the author of the experiment; and he, as all who know him will readily admit, is among the last persons in the world who have the slightest disposition to draw the long-bow. But let it be remembered that success of the kind indicated can only be achieved by masters in the art of Grape culture, and amateurs and lovers of change generally would not act wisely by rushing headlong into a similar method of culture. If they have good results in the good old way let them be content to travel in it; it is only on a small scale, and experimentally, that these innovations can be wisely indulged, however well the above-named practice has answered at Wilton.

Another range of similar dimensions is occupied with plants, of which there is an enormous demand for decorative purposes and affording flowers for cutting. It must suffice to say that all the popular kinds are largely and excellently grown, and that there is a remarkably fine collection of Orchids, not a few species being represented by such grand old specimens as are not seen every day; and that a houseful of seedling Cactuses, or rather Phyllocactuses, was not a common sight. Having been raised from fertilised flowers and the plants approaching the flowering stage, they are being watched with some interest. I only know one other similar batch of seedlings in a private garden—namely, Mr. Major's, at Cromwell House, Croydon. If these hybridisers and lovers of old plants should make Cactuses once more fashionable patience will have had its merited reward; and since the Sunflower mania nothing is impossible in the floral world.

We pass on, and pass through quickly, the last range in this block. It is larger than the others, has been twice filled with splendid Vines, and once emptied in consequence of the presence of the great Vine scourge the phylloxera. The victim of a double outbreak Mr. Challis is to be pitied, and the only thing consolatory about the matter is that by his close observations and investigations he may be able to obtain knowledge of the life history of the insect, and methods of subduing it that may be useful to others. We will leave this unfortunate house and pass to another range of no common excellence.

A GRAND PEACH HOUSE.

The range, which includes divisions for Peaches and late Grapes, must rank amongst the most complete and best in the kingdom. It is 200 feet long; back wall 12 feet high, front of the house 7 feet, height to the ridge about 15 feet, angle of roof 37°. The back wall contains an air passage with perforated ventilators at the top on the outside, and at the bottom in the inside of the house. Provision is also made for a supply of heated air in front, apart from the ordinary method of ventilation, which is abundantly provided for both by the front lights and on both sides of the ridge, the whole worked by continuous crank movement with the greatest ease. Rafters 9 by 2 inches are placed

5 feet apart, and crossing them at right angles are $2\frac{1}{2}$ by $1\frac{1}{2}$ inch purlins, to which the glass is attached. The glass covers the entire woodwork, the squares being fixed by a method which, after studying most others, Mr. Challis devised for himself. It is extremely simple and absolutely strong, the roof drip-proof but not air-proof. A square can be removed in a moment from any portion of the roof and replaced. This is done from the inside, so there is no difficulty in the matter of repairs, if such should be needed. The glass is fixed in copper clips that are secured to the purlins by nails of the same metal; two clips to each pane of 24 inches by 18 inches, the laps of the glass being immediately over the purlins. The clips are punched, slight elevated points being thus formed on the opposite side. On these the glass rests, hence a free passage is afforded for any condensed moisture to trickle through and on to the square below, while at the same time it follows that the space for the exit of moisture is available for the ingress of air. In a roof thus glazed there is small chance of the foliage of trees or Vines scorching, and the probability is similarly remote of the space between the laps being filled with water or ice, which in the one case seals the roof, and

now, the difficulty being to secure the edge of the trellis firmly next the path, as obviously the second row could not be in line with the supporting column under each rafter. Given a light roof this is unquestionably the best method of arrangement and planting a tolerably large Peach house, as not only can the back wall be covered with fruitful trees, but the trellis surface is much greater than by the common form of arching over the border or training the trees under the roof after the manner of Vines. By the single cross trellises, and the occupation of space overhead, Mr. Challis has ascertained that he obtains three and a half times the bearing surface over that afforded by an ordinary curvilinear trellis formed over the border; and with a double row of trees the surface would be proportionally increased. The gain would, of course, not be so great in low and narrow houses; but the economical plan to adopt by those who desire the greatest amount of produce for their outlay is to erect wide and lofty structures as light as possible. But what of the trees in the house under notice? They had been planted three years, and every inch of the trellises was covered. Only twice before have I seen such rapid growth—once at Wortley, young trees grown by Mr. Simpson under

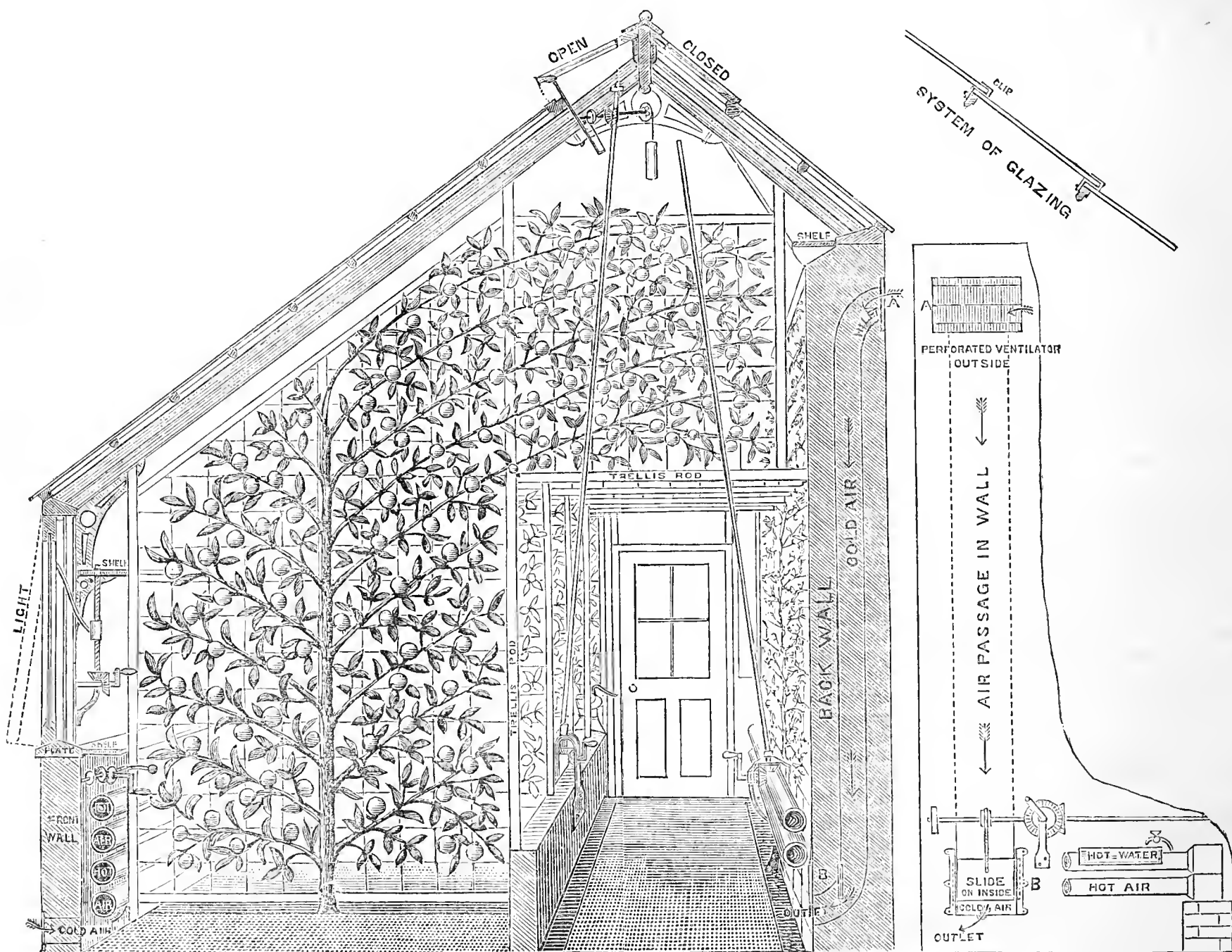


Fig. 5.—PEACH HOUSE AT WILTON.

in the other is liable to cause breakage of the glass. The strength of this system of glazing was accidentally tested. A span-roofed Rose house was being covered. One side was done when a violent storm rose. Although the wind, which uprooted trees, blew directly on the under side of the glazed portion for hours, not a square was transfixed, and the safety of the method was established.

The Peach house is trellised across the border from the ground to the roof, also over the doors and path to the back wall, which also is wired and covered with trees. The vertical trellises are 5 feet apart—that is, one under each rafter, and the light iron columns that support the roof act also as supports to the trellises next the walk. In one instance a double row of trees is formed across the border, the space between the trees being about a foot, and experience has shown that practically twice the quantity of fruit is obtained by this arrangement, or, in other words, the addition of a second row has not impaired the producing power of the first. This is a distinct gain, and it is certain that if Mr. Challis were erecting another Peach house similarly large and light, provision would be made for having double rows of trees across the border; indeed it is not improbable that some scheme will be devised for having them

glass; and previously at Oldlands, with trees on an open wall grown by Mr. Luckhurst, and in all three instances the fruit produced by this generous system of culture was of the first size, colour, and quality. The back walls of the houses are covered with Figs which, receiving abundance of light, thrive satisfactorily.

The varieties of Peaches and a few Nectarines which are found to give a long succession of superior fruit at Wilton are the following, which ripen somewhat in the order named. Early house—Early Beatrice, Early Louise, Hales' Early, Dr. Hogg, Grosse Mignonne, Stirling Castle, with Rivers' Early Orange and Elruge Nectarines. Second house—Royal George, Noblesse, Exquisite, Barrington, Walburton Admirable, with Violette Hâtive, Pine Apple, and Victoria Nectarines.

As affording a better idea than can be conveyed in writing of the trellis arrangement in the houses in question, a figure is introduced of the end division. The top ventilating gear on the north side, which is not shown, being similar to that on the south side. The hot-air pipes and perforated ventilators are shown at back and front, and the arrangements will now be comprehended. The walls are of cement. The method of glazing is given except the indentations in the clips for

forming the points on which the glass rests, instead of one pane resting on the other. This is a simple but important feature for the reasons above stated.

Like Lord Herbert, previously referred to, the present Earl and Countess of Pembroke appear to be great improvers, as it was by their decision that this splendid range was built, and it was through the combined thoughts and efforts of the agent on the estate, as well as the clerk of the works and gardener, that their instructions were carried out. The whole of the work was executed by workmen on the estate, with the exception of the heating, which was satisfactorily performed by Messrs. Weeks & Co., simply by an addition of pipes to the apparatus arranged formerly by them.

In line with the Peach houses are three noble vineries admirably furnished with late Grapes—Muscats, Lady Downe's, and Mrs. Pince, with Alicantes and Gros Colmans on the back wall. The Vines on the roof are as fine as can be desired, and those on the back wall as good as could be expected. For such a position the Black Alicante is the best variety. This is apparent at Wilton, as it was in Mr. Witherspoon's great vinery at Chester-le-Street, which I had the pleasure of inspecting a few years ago, and it will be long before the spectacle vanishes from my memory. This hint about Black Alicante is given in case there may be persons desirous of trying Vines against the back walls of their houses as well as overhead. The variety named appears to endure shade better than any other, but I say nothing about the quality of the fruit. The houses vary in width from 15 to 19 feet according to the configuration of the ground.

The structures at Wilton are well and satisfactorily heated by two miles and a half of hot-water pipes from one of Weeks' tubular boilers. Mushroom houses, fruit rooms, and all necessary appurtenances are represented in the most approved manner; indeed, only a little appears to be wanted to render the garden complete, and that little, additional space for growing plants. In this department overcrowding perforce prevails in maintaining the great supply of plants and flowers for the adornment of the mansion. In the summer flowers are afforded by an extensive collection of herbaceous plants, but during six months of the year they must be produced under glass.

This is all I can remember about historic Wilton, the ancestral home of a noble family—noble in deed as well as birth, as is shown by their kindness and consideration to all tenants and employés. No, not quite all, for there is the not-to-be-forgotten kindness of Mr. and Mrs. Challis extended to me during my short sojourn at this grand old place, the head centre of the ancient capital of the county in which it stands.—J. WRIGHT.

BOTHY LIFE—ROOMS AT KEW.

"LIBERTAS" has approached this subject in a very considerate manner, and this gives me hope that he will as readily acknowledge the weak points of his arguments when placed before him. His two principal objections to the scheme are, first, that the conditions in a public establishment like that at Kew and those in ordinary private gardens are very different; and second, that were such a bothy erected it would be difficult or impossible to maintain order. Regarding his first objection, the difference is not so great as he would have us believe; for though the gardeners at Kew have not to attend to the fires, they have to attend lectures and the reading-room, which equally require their presence in the gardens during the evening, so that "Libertas's" argument on this point is practically without support.

The second objection—namely, that it would be difficult to maintain order amongst so many young men, also seems at first glance very feasible, but it will not bear close examination. For instance, "Libertas" states that in private gardens in a bothy containing six young men there are usually two foremen who preserve the necessary order, but I may add that more frequently there is not more than one foreman to that number of men. Now at Kew there are between thirty and forty young gardeners, and there are three foremen in charge of departments; but there are also four advanced gardeners who in position more nearly resemble foremen in private gardens. We thus have seven officials who presumably owe their advancement to their abilities as cultivators, their steadiness and good moral characters, and who therefore may be expected to command the respect of the men generally. There would be a reliable official to every five young men, and is "Libertas" prepared to assert that the foremen at Kew are less capable of exercising the very moderate control that would be needed than are those in private gardens?

"Libertas" writes freely of "stringent rules," "proper supervision," and "strict discipline," as if he thinks it absolutely necessary that the men should be drilled like a regiment of soldiers, and that is the only portion of his letter in which I detect any appearance of unfairness. None of these restraints have been suggested except by him, and the proposal is calculated to check the free discussion of the subject by inspiring those concerned with a prejudice against the whole scheme. Has his opinion of the morals of the present young gardeners been formed on the same basis as that of "H. Notts?" I have known personally and intimately something like two hundred young gardeners, and my firm conviction is that for every one irreclaimably bad there are at least ten well conducted and disposed to do all they reasonably can to advance themselves in their profession. This is a good working majority, and is quite sufficient to keep the few in order, constituting, in fact, a species of self-government.

Further, judging by at least two sentences in your correspondent's

letter, I should say his "knowledge of the establishment" is very far from being "sufficient." He states first that "suitable lodgings are always within easy reach of the place," and as applied to Kew this is so obviously incorrect in every respect that it does not demand consideration after what has been stated by other correspondents. In another place he asserts that the time young men are supposed to stay at Kew "is not more than a year." There is no supposition of the kind. Young gardeners who go there know that they are not permanently engaged, and it would not be to their interest to remain for too long a period; but there is no rule expressed or implied to prevent a well-conducted young man from remaining two or three years if he wish to do so.—VERITAS.

JOSEPHINE DE MALINES PEAR—NORFOLK STONE PIPPIN APPLE.

HAVE any of your readers found their Josephine de Malines Pears ripen early this season? Our main crop was gathered on October 23rd, some a week later, some a few days earlier. They were ripe at Christmas, and are now nearly over. They grew well, perfectly clear, of a good size and of excellent flavour. They also coloured nicely on the tree, and kept sound until ripe; only one bad one in twenty-five dozen, a most unusual experience here with Pears. Should any of your readers living in exposed situations be thinking of planting Apple trees I would suggest that a trial be given to the White Pippin (or Norfolk Stone Pippin). Although small it is valuable on account of being able to withstand heavy gales without bruising. It is an excellent keeper, of first-class quality for cooking, and indeed is not to be despised for dessert in April and May.—C. B., *Swaffham*.

ROYAL HORTICULTURAL SOCIETY.

JANUARY 8TH.

THE first meeting of the year was well attended by the members of the Committees, and exhibits were also numerous, one side of the conservatory being occupied with groups of Cyclamens, Orchids, Primulas, and miscellaneous plants. The exhibits before the Fruit Committee were confined to specimens of seedling and other Apples.

FRUIT COMMITTEE.—H. J. Veitch, Esq., in the chair. Mr. A. E. Townsend, Handsworth, Sheffield, sent a seedling Apple, said to have been raised from a cross with Striped Beefing and Winter Strawberry. It had close resemblance to Hoary Morning, but it did not possess any merit to recommend it. Messrs. T. Perkins & Sons, Northampton, sent a seedling Apple, No. 1, of handsome appearance and in good keeping condition. It is called Perkins' A1. It has a brilliant red cheek and a brisk acidity. It was considered a useful Apple, and was referred to Mr. Barron to prove its cooking qualities, to be reported to next meeting. No. 2 was considered of no merit. No. 3 was also of no merit, being past its season. Mr. Horley of Foddington, Beds, sent three seedling Apples, but neither of them possessed any merit. Mr. G. Brooks, Willington Park, Ilminster, sent a seedling Apple which had been exhibited at the Apple Congress by Mr. John Scott of Merriott, under the name of "John Scott's Favourite." It was considered the same as Round Winter Nonesuch. Rev. A. Carter, Tewin Parsonage, Hertford, sent three seedling Apples which did not possess any merit. Mr. R. H. Poynter, nurseryman, Taunton, sent specimens of Bess Pool. A collection of twelve varieties of Apples and two of Pears were exhibited by Captain Fernie of Chase Lodge, Mill Hill, N.W.

FLORAL COMMITTEE—Section A, General Plants.—Present, G. F. Wilson, Esq., in the chair, and Messrs. H. Ebbage, J. O'Brien, J. Dominy, H. Williams, J. Hudson, W. Herbst, John Woodbridge, John Fraser, John Laing, G. Henslow, E. Hill, and H. Ballantine. Section B, Florists' Flowers.—Present, Mr. Shirley Hibberd in the chair, and Messrs. H. Bennett, W. Bealby, J. James, J. Douglas, J. Child, G. Duffield, D. Lathbury, H. Cannell, and W. B. Kellock. A silver Banksian medal was awarded to Henry Little, Esq., Hillingdon Place, Uxbridge, for a beautiful group of Cyclamens, vigorous plants and profusely flowered; the very dark red form, Mrs. H. Little, was especially notable. Some good Primulas were also shown, and an interesting collection of Orchids, comprising Masdevallia tovarensis well flowered, Lycaste Skinneri atro-rubra, and virginalis, the former a very deep-coloured variety; Cypripedium Spicerianum, C. villosum Boxalli, Odontoglossum Roezlii superbum, one of the finest varieties in cultivation, and some fine varieties of Odontoglossum Alexandræ, together with flowers of Chimonanthus fragrans, and a basket of plants of Saxifraga ligulata. A silver Banksian medal was awarded to Mr. B. S. Williams, Upper Holloway, for large groups of well-grown Cyclamens of his special strain, and Primulas of the Chiswick Red, rubra violacea, fimbriata alba, and fimbriata rubra strains, all well grown, and with large handsome flowers. A bronze Banksian medal was awarded to Messrs. H. Cannell & Sons, Swanley, Kent, for half a dozen extremely large and vigorous specimens of Primulas Emperor, Swanley White, Swanley Purple, Old Fern-leaved White, Swanley Red, and The Queen. The plants were 18 inches or nearly 2 feet in diameter, exceedingly well grown, and profusely flowered. Some plants of a large-flowered purple variety named Mammoth were also shown, and a box of variously and brightly coloured Primula blooms. A fine group of double Primulas was sent from the Society's Chiswick Garden, comprising all the best of these varieties—Mrs. Barron, pure white; Earl of Beaconsfield, pink; Princess, white; and Marchioness of Exeter, white. A plant of the single Chiswick Purple, with very large richly coloured blooms, was also shown.

G. F. Wilson, Esq., Weybridge, exhibited a well-grown specimen of Odontoglossum roseum, with about a dozen spikes of its neat rosy flowers. Mr. H. James, Lower Norwood, sent a plant of the variegated Panax Victoria, which has the pinnules edged with white and sharply cut. Mr. Eckford, Boreatton Park, Shrewsbury, showed a plant of a purple variety of Primula sinensis named Perfection. The flowers were large but not of remarkable beauty. A vote of thanks was accorded to Mr. C. Ross, gardener to C. Eyre, Esq., Newbury, for five new Crotons, one a narrow-leaved form, a cross between Johannis and Weismanni, being graceful and brightly

coloured. *C. Eyrei* was also shown in good condition. Messrs. Stuart and Mein, Kelso, sent spikes of *Spiraea confusa*, a neat and pretty species, with umbels of diminutive white flowers. A cultural commendation was awarded to Mr. Mann, gardener to Sir J. W. E. Welby Gregory, Bart., M.P., Denton Manor, Grantham, for specimen heads of *Poinsettia pulcherrima*, with three and four branches, the bracts highly coloured. Mr. H. Bennett, Shepperton, sent a box of forty-eight blooms of *Chrysanthemum Princess Teek*, white, tinged at the base with purple, very neat and regular in form. A vote of thanks was accorded.

Two pans of *Sophranites grandiflora* were shown by Mr. Salter, gardener to J. Southgate, Esq., Streatham; the plants were bearing fourteen fine brightly coloured flowers, being exceedingly fine, the petals broad and dark scarlet in colour. Mr. Herbst, Kew Nursery, Richmond, was awarded a cultural commendation for some extremely well-grown potfuls of *Lily of the Valley*; each containing about sixteen fine spikes and large bells, pure white, and with strong green foliage. Votes of thanks were accorded to Messrs. F. Sander & Co., St. Albans, for plants of *Saccolabium giganteum* illustre, a species with white flowers spotted with purple, the lip being also purple, and *Odontoglossum Hrubyianum*, a species resembling *O. cirrhosum* in form of flower, but the sepals and petals are pure white; the lip being yellow at the base and streaked with chocolate. Mr. Todman, gardener to J. Cannell, Esq., Bushey Down, Tooting Common, sent flowers of seedling hybrid *China Azaleas* named *Snowflake* and *Bridal Wreath*, both pure white and very free. Mr. Merritt, gardener to Lord Dacre, was awarded a vote of thanks for heads of *Poinsettia pulcherrima plenissima*, full, but with narrow bracts. Mr. J. Sheppard, Wolverstone, Ipswich, showed spikes of *Salvia Sheppardi*, a cross between *S. splendens Branti* and *S. Heeri*, but not of remarkable merit. Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., Oldfields, Bickley, Kent, showed a plant of *Odontoglossum crispum guttatum* var., which has broad deep brown blotches on sepals, petals, and lip. Mr. W. Brockbank, Brookhurst, near Manchester, was awarded a cultural commendation for a specimen of *Helleborus niger angustifolius*, nearly 3 feet in diameter, and bearing over sixty blooms of good size and pure white, but they had suffered considerably in transit.

First-class certificates were awarded for the following plants:—

Cattleya Percivaliana (R. P. Percival, Esq., Birkdale, Southport, and Mr. Salter, gardener to J. Southgate, Esq., Streatham).—A new *Cattleya* which has recently attracted much attention. Flowers of moderate size, petals $2\frac{1}{2}$ inches long, 2 inches broad, delicate purplish mauve. The sepals are the same colour, but narrow, half an inch broad, $2\frac{1}{2}$ inches long. The lip is about 2 inches long by $1\frac{1}{2}$ broad, rich deep crimson edged with mauve.

Cypripedium Leeannum (Veitch).—An interesting and pretty hybrid between *C. insigne Maulei* and *C. Spicerianum*. The flower is intermediate in size; the dorsal sepal very similar to that of *C. Spicerianum*, but with a few purple dots down the centre and at the base, where there is also a tinge of green. The sepals and petals are greenish, with a tinge of reddish brown after the style of *C. insigne Maulei*, the staminode being very much like that of the latter, but not so large.

Dieffenbachia Jenmani (Veitch).—A species from British Guiana, with elliptical leaves, 3 to 4 inches broad and about 10 inches long, dark shining green with parallel blotches of white.

Laelia anceps Percivaliana (Percival).—A charming variety, very free; the plant shown having five spikes with three flowers each. The sepals and petals are nearly white with a faint tinge of purple, the lip being white edged with bright purple.

Cyclamen Crimson Beauty (H. Little, Esq.).—A remarkably fine variety, with neatly formed flowers of a uniform deep rich crimson and very freely produced.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Sclerotia in Potatoes.—A communication was read from Mr. A. Stephen Wilson, expressing his views of the necessity of further examination of these bodies, which he proposes doing next season. He questioned the probability of Mr. Murray's experiments with nitric acid being decisive in showing that they are solely oxalate of lime. Mr. Murray remarked that the acid used was so excessively diluted that it could not have destroyed either protoplasm or starch if either had been present.

Impregnation of Potatoes through the Surface by Spores.—A letter from Mr. Plowright was read restating the fact that spores readily penetrate the epidermis of fresh tubers underground, but only through the eyes after drying. Mr. Murray observed that the question was not so much whether the earth could be penetrated, but whether it is usual for Potatoes to become injured in that way, and that the evidence for the disease reaching them by the haulm was certainly the common method.

Sifting Fungus Spores through Sand and Water.—Mr. W. G. Smith referred to some experiments he had made in reference to this subject. He said spores of the Potato fungus were not readily procurable in sufficiently large numbers wherewith to make satisfactory experiments, but spores belonging to the smut of corn (*Ustilago carbo*) he had in large quantities, and with these the experiments were made. *Ustilago* spores, being nearly black in colour, possessed a great advantage over the spores and zoospores of the Potato fungus, which were colourless.

Cylinders of glass were taken, each 8 inches long and half an inch in diameter; into one of these 6 inches of fine sand was placed, the bottom of the tube being first tied over with calico to prevent the sand escaping. A teaspoonful of water charged with *Ustilago* spores was then poured on to the top of the sand; in ten minutes the water all ran through, and on examination with the microscope as many spores were present in the water which had percolated through the 6 inches of sand as in the water which had not run through.

A second and similar cylinder was taken and charged with dry earth in fine powder. Water was then poured on the earth to make it quite compact, and more powdered earth and water placed in the tube till a compact 6-inch mass was presented. A spoonful of water charged with *Ustilago* spores was poured to the top. In two hours no water had run through, so the tube was left in a perpendicular position over a saucer all night. In the morning a part only of the water had run through, and this water was thickly charged with *Ustilago* spores. Mr. Smith said he was in the habit of filtering collodion through purified cotton wool, so that every particle

of dust and all minute atoms of grit might be retained in the wool, and he had never found the purified cotton wool fail. He therefore placed a plug of wool an inch deep in a third cylinder, and poured water charged with *Ustilago* spores on to the wool. In a short time most of the water had passed through, and there were as many spores, or nearly as many, in the filtered as in the unfiltered water.

In these experiments, as was to be expected, all the spores did not run through with the water in which they were originally held. Some of the spores together with a little water remained, but on the application of additional water (as must occur in the case of rain) all or nearly all the spores doubtlessly ran through. In the water which had passed through the earth a considerable number of spores belonging to two other fungi made their appearance. These must have been present in the earth. Mr. Smith said he had not the slightest wish to depreciate the value of Mr. Jensen's interesting full experiments, or to under-estimate the value of high moulding in Potatoes. He had merely challenged the experiments with sand, earth, and fungus spores. It had been proved, he said, that spores of a fungus (*Dactylium oogenum*) could find their way through the shells of fowls' eggs and grow on the membrane within the shell. In the face of a circumstance like this—and several others of a similar nature might be added, said Mr. Smith—the reports of spore-filtering through sand should not be received with too much credulity.

Professor Balfour remarked that spores—e.g., of *Penicillium*, contain fat, which renders them difficult to be wetted; while Professor Church added that carded cotton wool contains a half per cent. of fat, and it is only when treated with ether or boiling spirits of wine to remove this that it renders it easily permeable by water. If the wool has been thus treated water runs through with extraordinary rapidity.

Phylloxera in Victoria.—Mr. McLachlan alluded to a report made on this subject by a Committee of the Royal Society, when no phylloxera was discovered in the roots sent for examination; but, unfortunately, on examining some fresh material it is found to be undoubtedly present in some quantity. Not only was it in the living Vines, but in the roots left in the ground, showing the necessity of destroying by burning or drowning (as is done in England) the soil with the contained insects.

Coltsfoot in Flower.—Mr. McLachlan recorded the first blossom of this plant as seen by him on January 7th near Lewes. It blossomed on same day in 1882, and on January 12th, 1883.

Freesia sp.—Prof. Balfour exhibited a spray of small greenish yellow flowers. It was referred to Kew for identification.

Deoxidisation of Chlorophyll.—Prof. Church referred to a rediscovery by a French chemist of the possibility of restoring, not only the green colour to brown or oxidised chlorophyll, but also its characteristic absorption bands. He stated that about five years ago he discovered this process himself by mixing powdered zinc with boiling water and oxidised (brown) chlorophyll. It became after two or three days of a brilliant green. It had been extracted from Beetroot leaves.

Orchids from Out of Doors.—Mr. A. Smee exhibited a plant of *Odontoglossum Alexandrae* which had stood 8° of frost, but that species could not stand 11°. *O. Rossi* major, however, withstood 11° on December 13th; the plants were only protected by boughs.

LECTURE.—The Rev. G. Henslow first called attention to a *Panax* *Victoriae*. It had variegated foliage and with leaflets varying between pinnate and bipinnate. Comparing with *Aralia Sieboldi*, he pointed out how compound leaves, both of digitate and pinnate types, are formed from simple leaves by dividing them up into separate leaflets. The word "*panax*" was from the supposed virtues of *P. Schinseng* of China, the root of which was a panacea for evils, and would make men not only young but immortal. It had failed to do so in Europe. *P. quinquefolia* from North America was sometimes imported into China as a substitute. He next alluded to *Chimonanthus fragrans*, the Japanese Allspice, introduced in 1766 from China. This and the genus *Calycanthus*, called the Carolina Allspice, were the sole representatives of the order. The bark of the latter was sometimes used for Cinnamon. Mr. Henslow then remarked upon the fact that many plants, including Maples, Conifers, &c., had representative species in Japan and North America, and alluded to the speculations of geologists to account for the present distribution of such plants, and their descent from common forms, which probably existed in Miocene times, some of which appear to be those found at Oeningen and elsewhere in a fossilised state.

Crotons and Poinsettias were next taken to illustrate the order Euphorbiaceae, characterised in England by weeds like Spurge, but in tropical countries by trees and shrubs. He drew attention to the introduction of the Poinsettia in 1828, and figured in the "*Bot. Mag.*" vol. lxxiii., 3493. It was named after Mr. Poinsette, who discovered it in Mexico, who sent it to Charlestown, and from thence it came to Europe. Of Crotons, he mentioned the useful species—viz., *Croton Tiglium*, from the Indian Archipelago, whose seeds yielded the very acid Croton oil; *C. eleuteria*, from the Bahamas, which supplies the "cascarilla bark," containing bitter tonic and astringent qualities; *C. balsamiferum* of West Indies, from which a spirit is made called Eau de Mantes; and *C. lacciferum* of Ceylon, which furnishes a resin for varnishes. He alluded to the coloured and white foliage of these variegated plants, and explained how it was due to a want in the composition of the green chlorophyll, which is usually a compound substance of at least yellow chlorophyll and blue chlorophyll. In the case of the yellow leaves of the Croton the latter substance appeared to be wanting. In the white leaves of the *Panax* it was probably due to the extreme scarcity of chlorophyll grains.

The last subject for remark was a beautiful hybrid raised by Mr. Seden of Messrs. Veitch's establishment. It is called *C. Leeannum*, and received a first-class certificate. Its parents were *C. Spicerianum*, introduced in 1878, and *C. insigne Maulei*. It showed several intermediate characters; thus while *C. Spicerianum* had a corrugated purple and white "shield" (staminodium), that of *C. insigne* was smooth-edged and yellow-green. The hybrid shield had the colour of the latter, but the crimped edges of the former. Again, while the large upper petal is much spotted in *C. insigne*, not at all in *C. Spicerianum*, the hybrid is spotted, but to a much less extent than its parent. The slipper, however, was of a deeper red than is the case with either of the two species.



HARDY FRUIT GARDEN.

Birds and Buds.—Look to trees and bushes at once, and do all that is possible to keep off bullfinches and sparrows. In Christmas week we found pieces of buds scattered thickly under a May Duke Cherry tree which had suffered severely. Other Cherries and Plums had also been attacked by these troublesome birds. Gooseberries, too, had suffered slightly; as a temporary check as many trees as possible were immediately syringed with thin whitewash, and netting placed over all the bushes. Wire netting of sufficiently fine mesh to exclude small birds is decidedly best for bush-protection, and if kept permanently over them harm to bud or fruit could never happen. That this plan is desirable is proved by our own case. We had not lost a Gooseberry bud for eleven years, and had no thought of protection at this season of the year, but last year the bullfinches came in such numbers and with such persistency in spite of shooting that the crop suffered severely.

Planting and Training Raspberries.—In soil that is naturally suitable for fruit culture Raspberry culture resolves itself into careful planting, pruning, and training, and subsequently as the beds become old to surface dressings of manure; but in poor thin soil preparation must be made for each row by excavating trenches 3 feet wide and 18 inches deep, discarding the whole of the subsoil and filling the trench with a very rich compost of two-thirds of decayed vegetable matter or hotbed manure mixed with soil taken from the surface and laid aside as the trench is made. That this is necessary we have learnt to our cost, for we first tried trenching in a heavy dressing of manure in a poor soil, but the Raspberries never answered well, and we were obliged by dire necessity to resort to the trenches, which we did with complete success. At the planting each cane was shortened to 18 inches, and they were planted a foot apart along the centre of each trench, the rows being 5 feet apart, if space admits of it 6 feet apart is better. The 2 or 3 feet of poor soil between the trenches must be enriched the second winter after the planting precisely as if it were for another trench; the subsoil being taken away and the soil mixed with old manure. For training, a couple of wires, one 2 feet from the ground and the other 4 feet, strained to posts at each end of the row answer perfectly, the canes being tied to them erect, and cut off at 6 inches above the top wire. This height—4 feet 6 inches—we have found sufficient, the canes being laden with fruit from top to bottom. Higher canes throw so much shade that the lower part of the row has little or no fruit. We mention this matter because of the temptation to leave very strong growths longer than we advise, and it is not uncommon to see huge canes of 10 to 12 feet high before pruning.

Planting Fruit Trees.—Trenching land for fruit plantations is highly commendable, and it may be done now in any open weather. First do all necessary drainage, then trench two spits deep, breaking up the subsoil thoroughly, but simply turn the soil over upon it and bring no subsoil to the surface. The brick earth of North Kent so treated answers admirably for fruit culture. Planting follows the trenching in a fortnight or three weeks, but in cases of urgency we should not hesitate to plant immediately after the trenching, taking care subsequently to see that none of the trees become suspended upon the stakes, or the roots exposed or loosened in the soil as it settles. To do this thoroughly, examine the trees a month after planting, and again just before growth begins in spring. If the roots of newly planted trees are not closely embedded in the soil they will not grow; if they are left unfastened and become blown to and fro by the wind, or the soil about the roots becomes dry, the growth will be weakly and worthless, therefore stake and mulch at the time of planting. Apples, Pears, Plums, Cherries, Quinces, and Medlars are planted 20 feet apart if they are to become large standards or unpruned bushes, and there are three rows of Gooseberry or Currant bushes put between them and retained till crowded out by the trees. If closely pruned bush or pyramidal trees or Filberts are required, then 10 feet apart is sufficient, with one row of bush fruit between.

FRUIT-FORCING.

VINES.—*Early-fruiting Vines in Pots.*—Keep the house rather drier and warmer as the bunches come into flower. If the Vines are in a fermenting bed see that the heat does not decline, keeping it steady about the pots at 75°, encouraging the roots to find their way into the fermenting material or surrounding compost by applying weak tepid liquid manure. Tie down and stop young growth according to the space at command, and afterwards follow the extension system until the whole of the trellis is covered with foliage.

Early Vines.—When the buds on the Vines which have been suspended over fermenting materials have pushed freely from the rods these should be secured to the trellis. Disbudding must be performed by degrees, and see that the shoots are tied down before they touch the glass. Do not stop the laterals until sufficient growth has been obtained to secure an even supply of foliage all over the house, being careful, however, to prevent overcrowding, as it is important the principal foliage have full exposure to light and air. As the bunches draw out the temperature should be kept a little warmer, or 60° to 65° at night, with an increase of

5° to 10° by day; also keep the atmosphere a little drier, which has a tendency to prevent the bunches running into tendrils, as is sometimes the case when the wood of the Vines is badly ripened or the roots are in cold outside borders. If fermenting materials are used on outside borders the heat must not be allowed to decline, but by turning and adding fresh keep the temperature steady at 80° to 85°. The fermenting materials in the house should also be added to as occasion requires, replenishing with sweetened material, and with a gentle heat active feeding roots will be drawn up into the top-dressing of turf and crushed bones laid on in the autumn. Ventilate on all favourable occasions, being careful to avoid cold draughts and sudden depressions of temperature.

Succession Houses.—Where it is intended to have ripe Grapes early in June there must be no further delay in starting the Vines. All preparatory matters having been attended to, the inside borders must be given sufficient water at a temperature of 90° to bring the soil into a moist condition. A good bed of fermenting materials—Oak leaves and dung from the reserve heap made up inside the house—will help the Vines to break strongly and evenly. Strong young Vines when forced for the first time do not break regularly, and should be drawn down to a horizontal position until all the buds are fairly moving. Syringe the rods occasionally, doing so, however, sufficiently early in the afternoon to allow them to become dry before night. The temperature should range from 50° to 55° at night and by artificial means in the daytime, with an advance from sun heat to 60° or 65°.

Raising Vines from Eyes.—Select thoroughly ripened wood of medium strength for eyes, having them made and inserted in pots or sods without delay if intended for fruiting canes, placing in a bottom heat of 70° to 75°, and when growth takes place keep them near the glass, as it is important the wood be thoroughly solidified as made. Eyes intended to raise Vines for cutting back or planting need not be inserted or placed in heat until the middle of February.

FIGS.—*Early Trees in Pots.*—Assuming that well-ripened established trees were dressed and placed on brick pedestals with a body of fermenting Oak leaves placed round them, and the house closed early in December with a temperature of 50° at night and 55° by day, advancing 5° to 10° more from sun heat, the young fruit is now swelling, and the buds pushing into growth. The night temperature should be raised to 55°, with an increase of 10° to 15° by day from sun heat. Syringe twice a day, but always early in the afternoon, damping the floors well in the evening. Be careful not to have the bottom heat more than 70°. The roots will soon find their way into the fermenting material, and there do good service. Strive to secure short-jointed growth by admitting a little ventilation at the top of the house daily, giving sufficient fire heat to accomplish this at 65°, allowing the temperature to rise to 75° or a little more under bright sun, and close early in the afternoon, or between one and two o'clock.

PLANT HOUSES.

THE CONSERVATORY.—This house should be kept perfectly clean, for in any other condition it cannot be thoroughly enjoyed. It is wise to occasionally wash the glass, woodwork, and stages with warm water in which has been stirred a little soft soap. In many gardens at this season of the year flowers are scarce, but this need not be the case if previous directions have been attended to and care and judgment exercised in retarding or pushing forward plants that are in a backward state or coming forward too early. A good batch of dwarf Poinsettias should be grown in every garden where this structure has to be kept gay at the present time, as they take the place of scarlet Pelargoniums. Euphorbias are also useful and stand well, so does Centropogon Lucyanus. These associated freely and rising above Primulas, Cyclamens, Solanums, Hyacinths, Tulips, Cinerarias, Heaths, Rhododendrons, Azaleas, and others, have a charming appearance. Epacris at this season of the year, with their long slender stems of various-coloured flowers, stand well above dwarf plants. There is abundance of flowers now that will enable those who take a pride in their conservatories to make some of the most telling and effective arrangements possible at any season.

Tulips.—The early kinds that were placed thickly together in pans and boxes in August last as advised, and are now being forced, should, as they show the colour of their flowers, be lifted out. Early in the season if these bulbs are placed in pots and forced they often flower irregularly. By placing them in boxes those that show their flowers can be taken out and a number placed in 4, 5, or 6-inch pots, according to the size required, and thus even specimens are produced by a very simple system. The bulbs that are replanted should be kept well watered, and they will be found to last nearly as long as if they had been allowed to flower in the boxes without being disturbed. The single crowns of Lily of the Valley early in the season are treated in the same way, by which system only can full and regular pots of bloom be produced. This, if forced out in strong heat, must be gradually hardened before it is either cut or taken to the conservatory, and it will be found the sprays of bloom will last nearly double the length of time than if cut from a close frame or warm house.

Calanthes.—These beautiful Orchids are not used half so much in gardens for conservatories as they deserve to be. If the night temperature of the house can be kept on an average at 50° they will stand well when half developed and open the remainder of their flowers. If these plants when in flower are kept in a temperature 10° or 15° higher they will not last half so long. The flowers along their stem open quickly and are soon done, but this is not the case in the position we advise for them. Their deciduous character is a very great recommendation to them, because when grown in 5 and 6-inch pots for this purpose the pots can be hidden, and their long arching spikes of

flowers stand above other plants, and are thus shown to the greatest advantage. So many *Calanthes* of sorts cannot be grown where the conservatory has to be kept attractive during the winter months.

THE BEE-KEEPER.

NOTES ON BEES—PRACTICAL MANAGEMENT.

(Continued from page 520.)

TIMID BEE-KEEPERS.—Some bee-keepers are very much averse to opening hives oftener than they are compelled, on the principle that too much meddling is harmful; others, again, avoid interference with their bees because they are timid and cannot go about the task in that cool and quiet manner which is so requisite; in consequence it becomes to them a very disagreeable operation, and one to be avoided as much as possible. To advocate the system of spreading brood in spring with either of these classes of bee-keepers would be useless, as it requires frequent opening of the hive, and on this account would be highly objectionable to them.

One thing, however, is absolutely necessary—nine of the combs must be removed in autumn, and after being carefully wrapped up to protect them from moths, &c., kept indoors in a dry place for future use. In April of the following year, or as soon as the hive becomes populous and is working well, it requires enlarging; so if it is considered objectionable to do this gradually by spreading the brood as before mentioned the whole of the combs may be returned at one operation, and with very little disturbance, by pushing the nine frames upon which the bees have wintered, dividers and all, to one end of the hive. I insert the other nine combs, cover with the wood quilt, &c., and when all is arranged remove the divider and close up the frames. If a little smoke is used when lifting out the divider not a bee need escape, and the most timid manipulator will suffer no annoyance.

SECTION CRATES AND SUPERING, &c.—The general management of our hive in summer will be pretty well understood by those who have read what has already been written in former papers, so we need not occupy much space in describing it. But the subject of supering is such an important one to the apiarian, involving as it does the surplus honey for which he labours, that advanced bee-keepers are constantly desiring schemes which will assist in securing every advantage during the short time the honey season lasts.

We do not think the plan of storing section honey in the body of the hive will ever meet with favour from large producers, or be generally adopted. The objections to it are so many that it would take up too much space to enumerate them. Suffice it to say we have given it up, except for starting sections in early work and for completing unfinished ones in early autumn, and we find our opinion shared by all we have met with.

The proper place for supers is over the brood nest, where the warmth of the hive ascends and assists the bees in comb-building, and we have devised a section crate which is of great use in enabling us to overcome the difficulty so often experienced in inducing bees to enter supers early in the season. It is an effort to combine the advantages of the open crate, for convenience of handling and removal, with the superiority of the close crate over the other in conserving the heat at a time when this is so essential. All the sides are in two parts, hinged so that they can be let down when necessary. There is the usual half-inch space between the rows of sections, and three loose lids of half-inch stuff are used to cover frames and keep in the bees when the sections are not on.

When supering is decided on give one row only of sections (keeping the spaces to be occupied by the other two rows later, covered by the lids), and use no separators till the bees have taken possession and are working in the sections. If they enter at once it may be concluded that the hive is in good condition for supering, and the remaining two rows of sections should be given; the lids are then laid on the top of the section, and (except in hot weather) the quilts cover all to keep everything warm and snug. We always use the long-hole excluder zinc when supering.

For the timid and non-interfering bee-keeper already mentioned we need only say, Do not super till the first or second week in June unless the hive is very much crowded. Give the full crate of sections, and if honey is very abundant, a section crate may be set on alongside the first, as soon as combs are seen next the glass of those already on. When these combs are sealed over the whole crate may be removed for examination. If any of the sections are unfinished they may be given back to the bees to complete, or in a very good season the crate may be refilled and replaced on the hive.

We in common with all apiarians who are much among bees overhaul our sections at intervals, and removing such as are finished give empty ones instead.—W. B. C., Higher Bebington, Cheshire.



TO CORRESPONDENTS

To our Readers and Correspondents.—In consequence of the space occupied by the index to the last volume the publication of many valuable articles and interesting communications have to be postponed.

Rolling Lawns (F. J.).—No strict rule can be laid down on this subject. Some lawns, where the soil is naturally hard and porous, cannot be effectively rolled except after rain, while others of a wet and spongy nature are best rolled when moderately dry. Usually it is best to roll after rain in summer, but not in winter, especially if there are numerous wormcasts, because these adhere to the roller and are then shaken off more or less, spoiling the appearance of the grass. In rolling lawns in winter we always take advantage of fine days when the grass and wormcasts are dry, or nearly so, and the surface is kept smooth and clean.

Keeping Apples (Idem).—The fruit will keep quite as well on the uncovered shelves as on any soft material, provided it is handled carefully and placed in position gently to avoid even the slightest bruising. Much fruit is bruised by persons who have no idea of the fact at the time, because the injury is not visible at once; it, however, soon develops, the fruit being spoiled in appearance and impaired in quality. Apples and Pears should be handled and moved much more carefully than eggs, as being far more liable to injury; still, it is common to see the fruit poured out of baskets like so many Potatoes, while eggs are handled as if they were as tender as Apples.

Spray-Diffusers (Idem).—If you cannot find what you want at a chemist's or ironmonger's you might write to any of the dealers in horticultural implements who advertise in our columns or in the "Gardeners' Year-book," which is now being issued.

Staking Fruit Trees (D. Watts).—As a rule fruit trees ought to be secured to stakes as soon as planted, as they suffer materially if allowed to be twisted by the wind; but due consideration must be given to the condition of the soil. If it has been recently trenched and not settled the trees should be merely staged for a time, making them more secure in about a month. The roots should settle with the sinking of the soil, and they cannot do so if firmly secured to stakes before the soil becomes naturally consolidated. For this reason injury has often been done by securing trees closely to walls at the time of planting. They should only be lightly attached to the walls, then completing the nailing afterwards.

Pruning Roses (J. Tooting).—Although your Roses are starting into growth freely you had better not prune them. Even if they grow 3 or 4 inches near the extremities of the shoots, it is not likely that the lower buds will start, but the sap will flow past them into the outlets already provided; but if you remove the growing portions it will then be directed to the remaining buds, which cannot under its pressure long remain dormant if the weather continues mild.

Double Primulas (Idem).—Two of the best varieties now flowering at Chiswick are Lord Beaconsfield, carmine, and Marchioness of Exeter, blush white. You may grow these, also the old double white, which affords an abundance of flowers for cutting.

Mildew Composition (G. B.).—We cannot suggest a better method for testing the efficacy of your composition than in the summer, when mildew is prevalent on Vines, Peaches, and Roses, to offer to send a sample to cultivators who find it difficult to eradicate the pest. Will it destroy the Orange mildew on Roses? Although, as you commendably say, your "greatest desire is to benefit others," you are certainly entitled to some "small remuneration" if the composition proves more efficacious than others in the market, and this can only be determined by trials by different persons in the manner suggested.

Black Currants Buds "Knotted" (T. W., & Stoneleigh).—The condition of the buds is due to the presence of insects, and when these are numerous the bushes are practically ruined. We will refer to this subject more fully in an early issue, but in the meantime we fear there is no better remedy than cutting down the tree and burning the branches. The safe course, however, is to obtain healthy young trees and plant them as far as possible from those that are "knotted."

Propagating Indianrubber Plants (T. Butler).—The tops of plants 6 inches long, the lower pair of leaves removed and the stems inserted firmly in small pots of very sandy soil and plunged in a bottom heat of 90° in a warm propagating case, will, if kept constantly moist, emit roots and soon make attractive plants. Expert propagators raise a plant from every developed leaf. The leaves are scooped out of the stem so that the bud in the axil is secured. Each leaf is then secured to a stick and coiled round it as if coiling a sugar paper, and in that form loosely secured. Small pots are filled with nearly pure sand and watered, then the base of the leaf is pressed in it, covering the stalk, the stick which extends an inch or two below this holding the coiled leaf firmly. Quite small pots are employed, one leaf being inserted in the centre of each. These are plunged as before in a warm close case, and the soil and atmosphere kept constantly moist, yet not excessively so, this being governed by slight ventilation for a short time early in the morning. In due time the leafstalks callus and roots form; then the dormant bud elongates and a plant is produced. The hundreds of dwarf plants sold in Covent Garden Market are propagated in this manner; but it is no use attempting it without a brisk and regular heat, and a suitable frame or case.

Asplenium Ruta-muraria (A.).—This Fern thrives best in the crevices of limestone rocks where the atmosphere is moist. It succeeds in damp walls where there is lime either in the stone or mortar employed. A suitable compost for growing it in pots is crushed lime rubbish three parts with

one part each of peat and loam. It requires abundance of air, and does not succeed in close frames.

Ville's System of Manuring (*Paideia*).—The author named advocates the employment of chemical or artificial manures instead of ordinary farmyard manure, but you will find the whole fully explained in Crooke's translation of Ville's work on artificial manures, published by Longmans, Green & Co. We do not understand the second question in the form you state it. Cannot you obtain the information required from the science schools you appear to be connected with?

Materials for Vine Border (*Old Subscriber*).—You appear to have all the materials you need, as, although you do not name it, we presume you have a supply of good fresh loam of medium texture; and the ashes you name are, we presume, wood ashes, as they should be, and not the remains of coal. You mention "improving" a Vine border, and then ask when the border should be "made." This implies that you intend taking up the Vines, removing all the soil, adding fresh, and then replanting. You may do this now. Does not your gardener understand the work? If he does not we will readily aid you and him if you can enable us to understand the actual condition of the Vine and border.

Ivy for Growing under Trees (*Idem*).—Both the common large-leaved Irish Ivy that is usually employed for covering buildings, and the small English Ivy that grows wild in woods and covers the stems of trees, will answer your purpose, and you may plant the one you prefer. It is advisable to get healthy well-rooted plants, and dig and enrich the soil before planting to insure a free growth and quick covering of the now bare space.

Shading Melons (*J. T. S.*).—The necessity for shading Melons has rarely occurred with us, never, perhaps, except a few days of very dull weather are followed by a sudden outburst of hot sun, and then the shade afforded is of the lightest, such as a covering of hexagon netting; but we are always careful that the plants are well supplied with water, and that by timely thinning stout thinly disposed leaves are insured that do not flag during the brightest weather. Early morning ventilation, too, is always practised; in fact, the pits are not entirely closed at night during hot weather. Melons need shade occasionally when the glass is faulty and when the plants are grown in light soil; with strong soil, good glass, and good management the necessity for shading is reduced to a minimum. Where much shading is resorted to the fruit is seldom of high quality. Notes on Mistletoe propagation will shortly appear in our columns.

Relative Value of Manures (*W. R.*).—It is impossible for us or anyone to answer your questions categorically. An analytical chemist could tell you the constituents of any samples he examined, but farmyard manures differ very materially, and the term "average," as applied to them, is meaningless for all practical purposes. We give the analysis of Boussingault of good yard dung.

	Fresh.	Dry.
Carbon	74	358
Hydrogen	9	42
Oxygen	53	258
Nitrogen	4	20
Inorganic matter	67	322
Water	793	—
	1000	1000

The composition of the inorganic part of such manure, like that of the organic, varies considerably. The following shows the composition of 10,000 parts of the inorganic matter in yard dung (Richardson):—Potash, 322; soda, 273; lime, 34; magnesia, 26; sulphuric acid, 327; chlorine, 315; soluble silica, 2705; phosphate of lime, 711; phosphate of magnesia, 226; phosphate of iron, 468; phosphate of manganese, trace; phosphate of alumina, (?) trace; carbonate of lime, 934; carbonate of magnesia, 163; sand, 3099; alkali and loss, 397; total, 10,000. Soot also varies greatly. The constituents of a good sample are—charcoal, 371; salts of ammonia, 426; salts of potash and soda, 24; oxide of iron, 50; silica, 65; alumina, 31; sulphate of lime, 31; carbonate of magnesia, 2. Johnston, in his "Lectures on Agricultural Chemistry," thus refers to the variability of soot:—"The earthy substances which the soot contains are chiefly derived from the walls of the chimney and from the ash of the coal, part of which is carried up the chimney by the draught. These, therefore, must be variable, being largest in quantity where the draught is strongest, and where the earthy matter or ash in the coal is the greatest. The quantity of gypsum present depends upon the sulphur contained in the coal; that which is freest from sulphur will give a soot containing the least gypsum. The ammonia and the brown soluble substance containing nitrogen will vary with the quantity of nitrogen contained in the coal and with certain other causes, so that the composition of different samples of soot may be very unlike, and their influence upon vegetation therefore very unequal. The consequence of this must be, that the results obtained in one spot, or upon one crop, do not indicate the precise effect which another specimen of soot will produce in another locality, and upon another crop even of the same kind. And thus it happens that the use of soot prevails more, and is attended with more beneficial effects, in some districts than in others." The relative value of manures for practical purposes also depends greatly on the soil to which they are applied and the crops that are being grown; and you can only ascertain by experiment what kinds are the most effective and economical in your case. There is no other method of determining this so well. The market price of soot varies in different localities. We know of no book such as will exactly meet your expectation. Ville's work on artificial manures would probably be interesting to you; whether it would be useful depends on yourself.

Names of Fruits (*E. J. Lowe*).—Herefordshire Costard. (*T. H. A.*).—1, Ravelston Pippin; 2, Stirling Castle. (*Dorset*).—Golden Noble. You will find Melon culture in the "Manual on Kitchen Gardening," which you can have free by post by sending 4½d. in stamps to this office. (*Colville Browne*).—1, is not Round Winter Nonesuch, name not known; 2, Winter Majetin; 3, Pear perfectly worthless and name not known; 4, Vicar of Winkfield. Seedling Apple (*E. Charlton*).—Your Apple is of good flavour and handsome appearance, and though it is worth your keeping, it does not possess merit sufficient to warrant its being put into commerce.

Names of Plants (*A. H.*).—We cannot name two such diminutive fragments of plants as those you sent. Better examples in flower would be readily determined.

COVENT GARDEN MARKET.—JANUARY 9TH.

BUSINESS still keeps quiet, and prices have given way again. Kent Cobs easier.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 5 0	Nectarines	dozen	0 0 to 0 0
"	per barrel	0 0 0 0	Oranges	100	6 0 10 0
Apriots	box	0 0 0 0	Peaches	dozen	0 0 0 0
Chestnuts	bushel	10 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs	dozen	0 0 0 0	" dessert	dozen	1 0 5 0
Filberts	lb.	0 0 0 0	Pine Apples English ..	lb.	2 0 3 0
Cobs	per lb.	1 4 0 0	Plums and Damsons ..		0 0 0 0
Grapes	lb.	1 6 4 0	Strawberries	lb.	0 0 0 0
Lemon	case	15 0 21 0	St. Michael Pines ..	each	2 8 0
Melons	each	0 0 0 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney	100	1 0 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 3
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	3 0 4 0
Brussels Sprouts ..	½ sieve	1 6 2 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	ewt.	4 0 5 0
Capsicums	100	1 6 2 0	" Kidney	ewt.	4 0 5 0
Carrots	bunch	0 3 0 4	Rhubarb	bundle	0 4 0 0
Cauliflowers	dozen	2 0 3 0	Salsafy	bundle	1 0 0 0
Celery	bundle	1 6 2 0	Scorzoneria	bundle	1 6 0 0
Coleworts	doz. bunches	2 0 4 0	Seakale	basket	1 0 2 0
Cucumbers	each	0 4 0 10	Shallots	lb.	0 3 0 0
Endive	dozen	1 0 2 0	Spinach	bushel	2 6 3 6
Herbs	bunch	0 2 0 0	Tomatoes	lb.	0 3 0 10
Leeks	bunch	0 3 0 4	Turnips	bunch	0 3 0 0
Lettuce	score	1 0 1 6			



NEW AND IMPROVED AGRICULTURAL MACHINERY.

IN resuming this important subject we find various objects that were exhibited at the Islington Hall meeting of the Smithfield Club which demand attention. These must prove interesting to the farmer not only on account of their value for agricultural purposes, but also for the great ingenuity displayed in providing the most useful and at the same time the most effectual implements, calculated, not only to save and economise labour, but to afford the best methods for assisting and promoting new objects of profit in the profession of farming. Numbers of these implements are no doubt extremely valuable, but are also suggestive of objects and improvements as yet to be forthcoming in the future; and when we look back only a few years it must to every thoughtful mind be matter of astonishment that many of the recent discoveries had lain so long unavailable.

We find illustrated and noticed in *Bell's Messenger* various useful implements, some quite new, others improved. Amongst the former must be classed as a speciality exhibited by Mr. Thomas Corbett, of the Perseverance Iron Works, Shrewsbury, an implement which has not, perhaps, received the attention from English farmers which it deserves. The original and peculiar construction of the revolving mould board plough should induce practical farmers to give it a fair trial of its merits in the field, upon suitable land and under circumstances for which it is recommended. The revolving mould board is simply a wheel or disc, with concave and convex surfaces, the concave being presented to the furrow at a proper angle from the face on the land side. By a simple contrivance the mould board is adjusted to any required pitch, enabling the ploughman to adapt it at will to the varied requirements of the soil to be worked. A plough, therefore, which will make possible a more thorough tillage at a great saving of time and expense, ought to be doubly acceptable to every farmer. Believing that the patent revolving mould board plough possesses this merit in a very high degree, Mr. Corbett confidently submits its claims to the careful examination of the public. It is stated to possess the following advantages:—1st, It has a very superior pulverising power. Stubble land ploughed with this plough requires no harrowing. 2nd, It does not, in any circumstance, compress, smooth, and glaze the surface of the land slice; an advantage in wet or clayey soils. 3rd, By reason of its adjustable mould board it is adapted to either turf or stubble. In combination with the skim coulter, the sod may be thoroughly inverted and buried, so as to leave no

visible trace of its existence. This fact, and the high degree of pulverisation effected by the peculiar action of the revolving mould board, makes the subsequent planting and tilling of greensward as unobstructed and easy as is that of free or stubble land. 4th, With the revolving mould board plough clogging is an impossibility. For this and other reasons it turns under stubble and coarse manure more effectually, and distributes them more evenly than the common plough. 5th, The diminished friction lightens the draft; two horses doing with ease on heavy land the work of four with the ordinary plough, and the saving in draft is important. 6th, By removing the mould board it is converted into an excellent subsoil plough. Now these are a list of extremely valuable points, especially on lea ground or in case of ploughing-in green crops of any kind as manure, and we think worth the consideration of the home farmer under varying conditions of the land and season.

Another exhibit at Islington Hall by Messrs. Ransome, Head & Co., of the Orwell Works, Ipswich, is called "The Garden Plough," from the work it does being similar to that of the spade, is a most valuable implement, and is likely to be largely adopted. It is made with short beam and handles so as to take up but little room at the headlands when used for fruit culture, and is fitted with a wide share and deep drilled iron mould board, with a tail piece which breaks the furrow as it is turned. When used for farm work it can be fitted with a large skim-coulter for effectually burying the grass or twitch. We can readily believe in the effect of the turn furrow with tail piece, for we had many years ago one of our ordinary ploughs fitted by the smith with a kind of cutting knife fixed at the heel of the turn furrow, and it answered a good purpose, for when the land was kind and workable it left the land in a state fit for seeding without any harrowing at all.

We must now call attention to a patent yealming machine by Mr. Maynard, and when attached to his combined chaff engine was one of the most attractive novelties in the Agricultural Hall. In using it, a man pitches the hay or straw on to an elevating endless rake, which draws up the material to the yealming apparatus which straightens it for the knife of the chaff-cutter. It is a well-known fact that unless the straw is properly yealmed by hand before it goes into the feeding box a large portion of it goes in sideways and passes out of the engine as cavings. Maynard's mechanical yealming machine does the work better and more regularly than is done by hand, so that there is a gain apart from the great saving of manual labour, consequently the general advantage is immense, because farmers see the practical benefit of the combination. There were two other machines exhibited in the Agricultural Hall besides chaff-cutters that require Maynard's yealming machine—viz., Messrs. Clayton and Shuttleworth's chaff engine attached to their three hing machine, and Messrs. J. & F. Howard's straw-trussing machine. In the former case the yealmer would be placed between the straw shakers and chaff-cutter, and in the latter between the threshing machine and trussing or binding machine, and by combining Maynard's yealming machine, as shown in the hall, with Messrs. Howard's trussing machine, hay or long grass may be bound up in trusses as fast as it can be fed into the combined machine

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—As soon as the winter fallow-ploughing is completed horses will be employed in carting farmyard and box dung to the heap for the early root crops, such as Mangold, Potatoes, Cabbages, &c.; but in doing this the carts should be drawn up on the heap during accumulation in order to prevent its too great fermentation; for when it is cast into heap, instead of the carts being continuously drawn on the heap to tip their loads, it is apt to heat and lose a considerable portion of its value. There is, however, another way of disposing of the farmyard and box manure by laying it out and spreading immediately on the young Clover plants; and the fresher and newer it is, if properly made and mixed, the better, because if the straw is not entirely rotted down it will when spread fertilise the land as soon as rain occurs. The straw portion will overlap the Clover plants and to a certain extent preserve them from frost and snow, from which the roots often suffer, especially if the foliage on the crowns of the plants has been eaten down close by hungry sheep, which is too often the case, and the plants will frequently die. The carting of earth for making composts mixed with dung may now be done in readiness for application to pasture and parklands; and the pastures, which are either fed by dairy cows or mown for hay, should, to keep up fertility, receive in alternate years 3 cwt of bone superphosphate and 20 tons of compost per acre, the time for application of the superphosphate being the month of February, and the dung compost in dry weather in the winter months or immediately after the hay crop has been removed. Threshing corn of various kinds may now be done, so that any horse labour required for delivery either of corn or straw, may be done in the least busy period of the year. The corn which is intended for seed or for horse provender or cattle-feeding may be stored

in the granary, and the straw as fast as threshed should be carefully stacked, or any portion required for the thatching of buildings or cottages may be used for that purpose immediately, for the thatching done in the winter months will generally settle down closer and last longer than that which is laid on during the summer.

Hand Labour.—As this is the period when the underwood in the coppices is being cut, all wood required on the farm should be preserved. Spar wood for the thatcher will be required, also all the white and black thorns should be reserved just as they are cut, for carting away to those fields and roadsides where dead hedges are to be made, as this is particularly necessary on the open hill farms on the chalk or limestone hills. This being the period for executing this work a certain portion of the underwood either from the coppices or wide rows between the fields, the wood adapted for stakes, &c., should be carefully selected and carted to where it will be required, so that the horses may not be called away from tillage work during any busy period. Banking and ditching, too, in the enclosed districts of strong flat-lying soils, will now be going on, but let the home farmer bear in mind that it is frequently better to do away with banks and ditches than to repair or make them new. Draining, too, should be done where it has previously been carefully set out; but in general it is better to set out the work of draining in the first dry weather which occurs in the month of March or April, as it is easily seen at that time which are the parts most requiring to be drained.

Live Stock.—As roots are an abundant crop this year there is every reason why the horses at work on the farm, or the young animals also of one or two years old, should be allowed a small portion of them with their dry food, for our experience has taught us that the plan frequently adopted by farmers to only allow dry fodder and corn for their working horses during the winter is a mistake. We find that a moderate allowance of Swedish Turnips, Carrots, or Mangold, say from 10 lbs. to 14 lbs per day, will prove a great benefit to hard-worked farm horses or colts in the straw yard; it supports the constitution better, and we believe that various animals become incapable years sooner when kept on all dry food in the winter months, for the change is too great in the autumn from green fodder to corn and dry fodder, and the same in the spring when the change is suddenly made from all dry fodder to luxuriant Trifolium. Cattle in the boxes should now be prepared for the butcher according to size and forwardness, pushing on the largest bullocks for slaughter previous to the 1st of May, and reserving the smaller animals and lightest weights to be sold during the summer months, feeding the animals so as to be ready in succession for slaughter at the time required.

OUR LETTER BOX.

Unproductive Land (H. S. E.).—You have four acres of land, about one-half being very dry and the other half very wet; it is probable that the latter requires draining, and that it is made wet by springs from the higher gravelly land. If this is so, draining should be done, the springs being cut off by a drain 4 feet deep and pipe tiles laid between the light land and heavy. It is more than probable that the heavy land requires draining also. This should be done by drains 20 feet apart and 3 feet deep, with 2-inch pipe tiles laid down the incline and leading into a main drain 15 feet from the ditch instead of each drain having an outlet. As this land has been unproductive it is perhaps very foul with couch, and, if so, it should have a summer fallow instead of being cropped; while if the land is sour it requires chalk or lime. If it is clean it may be drained immediately, and then manured and sown with Oats on the strong part and Barley on the light part, and both seeded to Clover. If it is foul and fallowed it may be well manured in the autumn and sown with Wheat.

ROYAL AGRICULTURAL BENEVOLENT INSTITUTION.—The monthly meeting of the Council of this Society was held at their offices, 26, Charles Street, St. James's, on Tuesday, the 1st inst., Mr. John Marten in the chair. The Secretary stated that there were at present on the books of the Society 611 pensioners, eight having died during the past three months; and that since the last meeting of the Council £3324 had been received from subscriptions and other sources. Cheques amounting to £3385 for quarterly pensions and current expenses were drawn.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				
	Baromet- er at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		Rain
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1884.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday 30	30.350	38.6	37.9	N.W.	41.4	39.5	37.3	39.9	37.1	—
Monday 31	30.538	36.3	34.7	N.E.	49.8	38.7	35.0	40.8	34.9	—
Tuesday 1	30.345	34.6	33.5	N.E.	49.0	38.2	32.2	38.5	32.3	0.029
Wednesday ... 2	30.150	38.3	38.0	N.E.	39.3	42.8	32.5	43.6	32.2	0.099
Thursday ... 3	30.942	48.4	48.2	S.W.	40.3	51.0	37.8	50.8	35.3	0.077
Friday 4	31.169	47.7	47.3	W.	42.2	50.5	46.7	51.2	41.3	—
Saturday 5	30.083	48.4	47.5	S.E.	43.3	50.5	45.0	50.2	39.5	0.148
	30.363	41.8	41.0		41.0	44.5	38.1	45.0	36.1	0.348

REMARKS.

30th.—Dull, with slight drizzle; fine in evening.
31st.—Fine and drier, but no sunshine. Jan. 1st.—Dry fair morning; sun in afternoon.
2nd.—Dull and thick. 3rd.—Dull, damp, and mild. 4th.—Overcast and warm.
5th.—Fair till noon, rain afterwards.
A very dull week, without a gleam of sunshine. Cool in the early part, and as mild as April towards the end.—G. J. SYMONS.



17	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M. National Chrys-
18	F	[anthemum Society, Annual Meeting 7 P.M., Bishopsgate Street.
19	S	
20	SUN	2ND SUNDAY AFTER EPIPHANY.
21	M	
22	TU	
23	W	Society of Arts at 8 P.M.

PHYLLOXERA.

IT gives me very great pleasure to be able to say that this insect does not now appear to me such a formidable foe—at least, to English cultivators of the Vine—as it has been hitherto; nor does it now seem such a hopeless task to extirpate it from our vineries without sacrificing the Vines as it previously did. I would not wish it to be understood that this, the worst enemy the gardener has, should be underrated nor indifferently regarded; on the contrary, I fully believe it will still require the strictest precautions, the utmost vigilance, the earnest and combined efforts of every cultivator, whether in the vinery or in the open garden, to stay its progress.

As to stamping it out—well, I never yet believed in the impossible creed, and will therefore say no more on that head, but would rather urge upon every individual who cultivates a Vine, whether in a pot for sale or in the well-appointed vinery or on the cottage wall, not to harbour this insect thoughtlessly nor ignorantly, but to make himself acquainted with its nature and economy as soon as possible, and when they find it to destroy it instantly. Immediate, determined, and combined action would certainly go a long way towards stamping it out; but while it is permitted to remain undisturbed in our vineries, to multiply and pass through its various stages, and to eventually assume its winged form, whereby it may be wafted to new stations to form fresh colonies, extermination is indeed a vain hope.

As to the individual who has ventured to designate the wholesome fears which most gardeners entertain of this pest as a needless sensational scare, the worst I wish him is that he may never from personal experience of its terrible powers of destruction have cause to repent the use of such language. But after the numerous instances of the serious havoc it has caused in this country during the last twenty years, which attacks will necessarily increase while such heedlessness is shown, thoughtless expressions should not, I think, be allowed to pass without reproof. We know that in everyday life, as the most simple and trivial actions of the least of us may influence someone either for good or the reverse, so also from our attempts as scribes similar results may accrue.

In attempting to exterminate this insect from our vineries it will, I think, be requisite that the present system of cultivation should be considerably modified, also that somewhat greater preparatory arrangements and expenses should be incurred than have hitherto been thought necessary. This insect is so minute as to be almost invisible in its migrations. It attacks that part of the Vine more especially which is the least easy of inspection, and where it is the most difficult to detect and destroy. It increases in numbers so rapidly and consumes the roots so voraciously that its presence also may not be suspected by the keenest observer till considerable injury has been effected, even to such extent as to seriously impair in a few months the vitality of the strongest Vine. It therefore becomes imperatively necessary that, if possible, some simple and effective

antidote should be employed which, by its frequent periodical use, will act not only as a safe and convenient preventive, but also as an effective destructive agent.

Should annual inspection of the borders and roots be instituted it can only be done with safety at the fall of the leaf, and then only partially, nor without the Vine receiving at least a slight check, nor can it be accomplished without incurring considerable expense in labour. But what is far worse is the damage the insect is capable of inflicting during this interval of time, and when found the Vines, borders, and everything else pertaining thereto must, under existing circumstances, be swept clean out and burnt, so as to effect a perfect riddance of the pest. New borders must then be made and fresh Vines established with the fervent yet sometimes fruitless hope that it will not again appear.

This loss of time, these difficulties and expensive operations, tend to show how invaluable must be a simple and efficient preventive; they also tend to justify most conclusively an increased preparatory expense which shall secure immunity from its attack. One of these agents, which in some of the continental vineyards has, we are informed, been of some value, is sulpho-carbolate of potash. How frequently, or in what particular quantities it has been used, I do not know, but we are informed it has been applied as a surface dressing, and either watered-in immediately or else been permitted to remain on the surface to be washed down to the roots by rain, where it is said to instantly destroy the insects and also to act as a fertiliser to the Vines. I regret to say that my experience with it as a destructive agent has not been very satisfactory. I can scarcely believe that it was not applied in sufficient quantity, but whether the water being allowed to remain in the vessels with the compound tended to counteract and neutralise it I cannot say. As will be seen below, it had no appreciable effect in destroying the insects, and, as far as my experiments went, they tended to show that it is of little value for this purpose.

Pieces of Vine root from 6 to 18 inches in length, and covered with phylloxera, were placed in five different vessels, each of which was numbered. The roots were covered with loam, water was then introduced, and afterwards the sulpho-carbolate of potash was added in quantities as follows:—

Vessel.	Gallons of Water.	Sulpho-carbolate of Potash.
No. 1	1	1 oz.
No. 2	1	2 ozs.
No. 3	1	3 ozs.
No. 4	1	4 ozs.
No. 5	1	pure soft water only.

This was done on November 12th, and after twenty-four hours' submersion the roots and insects were carefully examined under a magnifying power of 70 diameters, or 4900 times superficially, when nearly every insect was found to be alive. Being otherwise engaged at this time, I could not examine them again till the 17th, five days after submersion, when all were found to be dead, not only in the vessels which contained the potash, but in that which contained only pure water.

On November 19th I again prepared the vessels and roots precisely as before, with the exception that different and greater quantities of potash were used, as follows:—

Vessel.	Gallons of Water.	Sulpho-carbolate of Potash.
No. 1	1	2 ozs.
No. 2	1	3 ozs.
No. 3	1	4 ozs.
No. 4	1	8 ozs.
No. 5	1	pure soft water only.

Pieces of root taken from each vessel were examined under the same power as previously used, after twelve hours' submersion, when, in each instance, the insects were found to be alive. On the 20th they were again examined after thirty-six hours' immersion, when from 50 to 60 per cent. were found alive in each vessel.

Again, on the 21st, after sixty hours' immersion, they were examined, when from 5 to 10 per cent. in each vessel were still found to be alive, but their movements at this time were so slow and feeble as scarcely to be perceptible. On the 22nd, after eighty-four hours' immersion, they were again tested, when all were found to be quite dead, in the pure water as well as that which was mixed with potash, and, in many instances, the insects were partially decomposed and required but the merest touch with a needle to fall to pieces. These experiments proved most conclusively two things—first, that the application of half a pound of sulpho-carbolic acid of potash dissolved in a gallon of water will not instantly destroy this pest, nor did its presence in the water appear to exercise any decided effect on the insect. As the potash was obtained specially for me through a first-class wholesale chemist, and as the purpose for which it was required was made known to them at the time of ordering, and the cost—8s. per lb., I have every reason to suppose it was genuine. If the proprietors of the continental vineyards pay the same price, and apply it in the same proportion as I did, I fear, even if the results were satisfactory, its free use would prove far too expensive.

These experiments also proved most clearly that eighty-four hours' complete submersion, even in pure water and loam, will effectually destroy it. Hence, this simple and comparatively inexpensive method seems to be, at any rate in England where the space occupied by the Vine borders is necessarily limited, to be deserving of consideration. To those who are about to erect new vineries or renew old borders I would particularly recommend tank borders, where the roots may be conveniently and completely submerged for four or even six days every spring just as the buds begin to swell, and again for the same length of time each autumn when their growth is completed. I say six days, because it would undoubtedly take a longer time for a Vine border to become thoroughly saturated than was the case with the soil covering the roots in the vessels used; nor do I think complete submersion of the border for six days at the two periods mentioned would prove injurious to the Vines, provided thoroughly efficient drainage be secured afterwards.

Lest the mention of "tank Vine borders" should alarm some of your timorous readers, I will endeavour to show that they are neither such costly nor such inconvenient structures as would at first appear, and certainly not so much so as to prevent their erection for this special purpose. If a tank border will afford a safe means of security against the attacks of phylloxera, and I firmly believe it will, its first and only cost would prove much less than that occasioned by a visit from this unwelcome visitor into an ordinary border. It is not an unusual practice, nor is it an unnecessary one in low-lying positions, or where the subsoil is at all retentive of moisture, to concrete the bottom of a Vine border, and where this is done it is but the addition of four upright walls 4 feet 6 inches high, and 6 inches wide, built with the same materials and rendered with cement and fine sand, and the tank is complete.

As I do not believe in preaching one doctrine and practising another, I will briefly describe the steps we have already taken in this direction. Having last autumn discovered phylloxera in three old vineries in the outside as well as inside borders, and having first obtained the permission of my noble employers, it was decided to make a clean sweep by removing every particle in which it was possible for the insects to lodge. After fumigation, painting, and general cleansing, it was determined, after the results of the experiments already mentioned, to erect tanks. These houses having formerly been used for growing Pines, the tanners' bark pits in them offered favourable facilities for their erection, the four walls forming the pits having only to be faced with cement as well as the base, and the tanks were completed. Ample provision for drainage was provided by giving a sharp fall to the bottom of the border to the lower side. Two-inch pipes were then inserted through the wall at

the lowest points, and neatly fitted with modern plugs on the outside, so as to be conveniently adjusted. The drainage consists of 9 inches of brickbats laid level on the top, over this 4 inches of coarse gravel or stones about 2 inches cube; this is made perfectly level and rammed down firm, then 3 inches of coarse cinders and slag; this is also rammed quite level as before, and finally 3 inches of coal ashes also rolled down perfectly firm and even. I need scarcely say that this will remain porous for any reasonable length of time. The soil rests on this, as I do not like the practice of inverted turves on the bottom, simply because they form, after the grass and fibre is decayed, a bad means for quick drainage. The borders being small, they are made of good lasting materials—i.e., good sandy loam with a small admixture of bones, lime scraps, and a portion of the old border in the form of burnt earth and charcoal; this being dry it is placed not lightly, but trodden down firmly to a depth of 2 feet 9 inches, allowing 6 inches for water space on the top.

The Vines will be planted in the spring, and as there is very little vegetable matter in these borders I purpose supplying the missing ingredients by means of a hose from a tank, into which runs the liquid from the decaying vegetable heap and stable yard. Fortunately the proper elevation of the heating apparatus enables me to warm this water to any required temperature by admitting at will into the supply pipe a sufficiency of hot water. Similar means also exist for the admission of clear water when required. By these arrangements I hope to bid defiance to the phylloxera, which I need scarcely say has caused me some anxiety and trouble. I have, however, the satisfaction of knowing that the labour in these vineries in future will be greatly lessened by the tank system, which to my mind possesses many advantages, irrespective of the great one, of being phylloxera-proof.

So out of evil sometimes comes good. In examining specimens of phylloxera the other day through a magnifying power of 300 diameters, I observed that many of them were nearly covered with reddish-coloured, beetle-like parasites, plainly showing that even these mites in creation are in their turn food for others, even smaller still.

"Big fleas have little fleas on their backs to bite 'em,
Little fleas have lesser fleas, and so *ad infinitum*."

—T. CHALLIS.

PEA CULTURE.

IN preparing ground for Peas it is very important that it should be deeply dug or trenched, and if poor a plentiful supply of manure should be given; but in gardens which have been a long time under good cultivation it is possible to make the ground too rich, and when this happens the Peas run up to a great height and make long jointed growths which are not fruitful. On very hot dry land it is a good plan to prepare trenches in the same way as for Celery. These trenches should be left partly open after the Peas are sown. By thus leaving the trenches a good opportunity is afforded for drenching the soil with liquid manure should the weather be such as to render this necessary. The distance between the rows will depend on the height of the sorts grown. It is better to give tall growers from 6 to 10 feet between them, and to grow a crop such as Cauliflowers or Lettuces between than to crowd them.

I do not think anything is gained by sowing too early. I have found the month of February quite early enough for this low-lying and somewhat cold district, but I would advise a good quantity to be sown at one time for the first two or three sowings, after which I make a practice of sowing every week, in quantity according to the demand, up till the end of June. Having got the earliest sowing fairly up they must be carefully watched, as if left unprotected the sparrows will soon make short work of them. A very simple though good plan is to place a few spruce boughs on each side of the rows in addition to the Pea sticks. Around these run some cotton or pieces of old garden netting. The sparrows do not like the look of this, though in time they will get used to it and will make their way to the young Peas if not well looked after.

One of the most important points in growing Peas really well is in keeping them sufficiently moist at the roots, and

this important matter must not be delayed till the crop is suffering by the want of water, but must be seen to as soon as a fair start is made. One thorough watering should suffice, after which a mulching should be given. If half-decayed manure can be spared so much the better, but failing this something must be found, if it is only a few handfuls of leaves, fern, or straw; in fact, anything to retain the moisture.

In addition to the varieties mentioned I have found the following give excellent results—Gladiator, Marvel, Criterion, Telegraph, Telephone, Laxton's Supreme, Vetch's Perfection, Emperor of the Marrows, and Ne Plus Ultra. I have grown many others, but at present prefer the above to meet the peculiarities of our climate.—G. MERRITT, *Welwyn*.

PLANTING LILIUMS IN SHRUB AND FLOWER BORDERS.

MR. LUCKHURST has given us some very suggestive notes on the above subject on page 556, last volume—especially interesting being those on his success during the past season with *Lilium auratum*, the queen of Lilies in the open borders. Most of us are familiar with this grand species, and also experience but little difficulty in its culture grown in pots; but to successfully establish bulbs in the open border and maintain them in health for a number of years is no easy task. Many have tried to do so, but have failed to induce them to thrive satisfactorily after the first season, although every means as regards soil and situation had been used to that effect.

My employer is an ardent admirer of Liliams, especially *L. auratum*, and for years previous to my taking charge he had tried to get bulbs of the latter established, but to no effect. For instance, a clump of two dozen fine bulbs of *L. auratum* were planted in well-prepared soil and good situation a couple of years ago. The first year every bulb flowered well, but in the second only half a dozen threw up flowering stems, the blooms of which were very inferior in every way. More than half of the bulbs, too, had perished. We have, however, notwithstanding previous failures, resolved to give the latter species another trial. As I have previously stated in former notes on this subject in the Journal, we procured a number of fine imported bulbs and potted them early in the year. In May these were planted out in groups on the rockwork in sheltered portions of the garden, and after flowering allowed to remain there, hoping to establish them. I have to-day examined the bulbs and find they are in good condition, so hope to obtain better results next year. It certainly seems strange that in some instances *L. auratum* is found to thrive and flower for years in the open border, whilst in others inevitable failures occur. In a small garden not far from here I saw some fine clumps in flower during the summer, and these had been growing and flowering for years in a *Rhododendron* bed.

Again, that skilful cultivator of hardy plants, Mr. Wolley Dod, seems to have discovered the secret of their successful cultivation, for on referring to page 215 of vol. v. of the Journal, I find an able article by him on the culture of *Lilium auratum* in the open border. After discussing the superiority of English-grown over imported bulbs, the greater per-centages of failures in the open borders *versus* pots, and his disapproval of the plan of potting the bulbs previous to planting them out later on, he having planted bulbs when the ground was frozen to a depth of several inches; taking care, however, to remove all frozen soil and use such as was not around the bulbs. He gives the details of his observations and experience as follows:—"As regards the position in the garden in which to plant *L. auratum*, we are often told that they like shade, but the more I see of them the more inclined I am to think that in the English climate it is not easy for them to have too much sun. Shelter, no doubt, is good, and vacant places in *Rhododendron* beds, where the young growth is sheltered from parching winds and spring frosts, are good situations to plant them; but overhanging trees, which encourage damp and cause the air to stagnate, are favourable to a disease called 'spot,' which destroys the flowering of these Lilies. After trying every part of my garden I find that they do best in some exposed beds with 3 feet of moderately strong soil mixed with blocks of stone, and below that a foot of drainage. There they grow not more than from 4 to 5 feet high, making from six to ten flowers on a stalk; but up to this time—namely, the end of August, at which the flowering of many is past, they are quite healthy. Still, it must be confessed that the English climate, with its summer storms of wind and rain, is not quite suited for a flower so liable to be damaged by weather as that of *L. auratum*." It will thus be seen that it was only after repeated trials in all parts of the

garden that Mr. Wolley Dod attained success. Bulbs are certainly cheap enough to induce everyone to follow his advice and endeavour to find the most suitable situation to insure success. Mr. Luckhurst's idea of associating them with shrubs is a highly commendable one, affording as they do a most pleasing contrast. We have fine and well-established clumps of *L. longiflorum*, *L. Thunbergianum*, *L. lancifolium rubrum*, *L. bulbiferum*, *L. tigrinum*, and *L. candidum* growing in beds and borders. I am glad to see Mr. Luckhurst grows a number of the most effective of autumnal-blooming plants, *Scbizostylis coccinea*, also the very handsome and charmingly flowered *Tygridias*. The latter succeed remarkably well us. A top-dressing of rich decomposed dung will assist both growth and flower wonderfully.—T. W. SANDERS.

STORED-UP SAP.

IF any other persons who have taken part in this discussion will say that they endorse the statements in "Non-Believer's" letter on page 27, I shall have more to say on the points therein noticed; but I refuse to take up valuable space with merely personal matters, or in re-arguing points which are already decided in my favour. I have evidence from several quarters that the discussion, so far as it has gone, has been valuable and instructive to many readers; and, inasmuch as it has caused me to look up some authorities with greater zest than usual, it has in an indirect manner been useful to myself, and I have had the satisfaction of finding support in quarters where I did not expect it. For this, readers of the Journal, including myself, are indebted to "Non-Believer." I am still willing to argue any points for a similar purpose, but when we cease to be instructive either to ourselves or others let us stop and give up the space to more important matters.

In the last two lines of "Non-Believer's" letter already referred to there is a sentence which contains matter for legitimate argument, and I will willingly wield my pen in defence of my views. But first let me ask, Why does your correspondent want to go back to "experienced gardeners" for support on any theoretical matter? In one of his previous letters he expressed a wish to have the points raised decided by the "authorities at Kew or elsewhere." Did not the revelations of the microscope satisfy him as far as they went, or was he disappointed? If he is a gardener they ought to have taught him a valuable lesson, as they did myself. It is generally acknowledged that "experienced gardeners" as a class do not go very deeply into these matters, and although I have plodded away in a rough sort of manner and found out some little wrinkles for myself, there is very much remaining of even vital importance which I should like to see cleared up by a series of investigations by competent authorities, and this brings me to the point I have to notice.

"Non-Believer" says that my idea that "the Vine has an economy peculiar to itself" is groundless. It may be; but if so, will he kindly answer the following questions? First, Is it common for plants and cuttings from such plants to root as freely from the upper as from the lower end, and thus reverse the order of their growth? Will the Gooseberry, Rose, or Geranium inserted in the ground bottom upwards commence freely making a head where in the natural order of things its roots ought to be produced? Isolated instances of plants existing after being blown over and having their tops partly buried are not to the point. Can they be made to grow freely the reverse way with any degree of certainty? The Vine can, and it appears to be almost immaterial to it which end it grows from, whether as a layer, a cutting, or a graft.

Second, What plant besides the Vine will subsist almost equally on the bare rock or without soil (see page 27, in the notice of Wilton House), and in the richest nitrogenous material—*e.g.*, the dead body of a horse? It may be new to some of the younger readers of this Journal to be told that not very long ago carrion used to be considered essential to the production of first-class Grapes, and that borders are probably still in existence where horses and cows were buried. Even Dr. Lindley held that a soil could not be too rich for either Roses or Vines. We now know that the worthy doctor, as well as many of his contemporaries, were slightly in error in this respect, and that over-manuring has led to many failures.

Third, What plant besides the Vine makes leaf-growth before it makes root-growth? There may be some, but I have not yet found any to do so habitually. With most of the cultivated fruits root-growth commences first. The Plum stock, whether it is used for bearing a Plum or a Peach, commences root-action under natural or good artificial conditions some time before there is any sign of the leaf unfolding.

Fourth, What plant besides the Vine may be found in fairly good condition both in soil which is as hard as a turnpike road and that which is as loose as a cinder heap? Not long ago it was considered the correct thing to make Vine borders up loosely and forbid any trampling on them, and who can deny that very excellent Grapes were produced? Now we go to the opposite extreme and make them very firm, and yet equally good fruit is grown.

Fifth, What plant is so able as the Vine to take care of itself under very trying conditions? If the soil it is planted in does not suit it, although prepared in a very elaborate manner and tended with the greatest possible care, it will ramble till it finds something suitable, although it has to pass through what we should consider very unsuitable

material to reach it, such as a bed of clay or a gravel walk, and even bricks and mortar in the form of solid masonry will not long arrest its progress. I have lately found an entire vegetable plot some 40 feet from a Vine border almost filled with Vine roots in better condition than they were in the well-prepared border. The reason probably is that the border, which is in a warm spot and slopes to the south, has at times suffered from an insufficient supply of water; the roots therefore travelled in search of the needful moisture, and although they must have been frequently cut off with the spade, the annual reproductions were sufficient to keep the Vines in a fairly good state of health, and Madresfield Court especially did exceptionally well. I wonder, too, what plant besides the Vine could exist with the scrapings and dressings it has long been subjected to.

Sixth, What fruit besides the Grape, having no natural keeping properties, after being severed from the plant will retain all its fresh appearance for months by merely inserting its stem in water? There is another point here, too, which is interesting. So long as the stem with the fruit on it touches the water the latter remains sweet, at least I have proved it to do so for five months without charcoal or anything added; but immediately the stem ceases to touch the water the latter rapidly becomes putrid, and this I think points to a certain amount of circulation (not mere absorption) between the water and some of the constituents of the fruit. We know also that the Grapes if left on the Vine and kept from decaying till growth commences the following year will partially regain their plumpness, and in some cases under experiment they have even absorbed sufficient to burst their skins. I cannot remember any other fruit which will do this.—WM. TAYLOR.

AN ESTIMATE OF VEGETABLES.

SEED catalogues are now being distributed; many of them are works of art, welcome to all, and prove a source of pleasure to recipients, yet to some they are bewildering. They are pleasing when the cultural notes they contain are simple yet practical, and the numerous woodcuts truthful, while they bewilder the inexperienced, especially owing to the great variety to select from, the whole being apparently of nearly equal merit. This, to a certain extent, is old ground, but those not requiring information in the matter must remember that there are many who do. I shall endeavour to give an impartial opinion upon the merits of all, adding a few notes to each section.

ASPARAGUS.—This season we were enabled to decide upon the qualities of the Argenteuil varieties of Asparagus, and find that the Early Giant Purple is certainly a few days earlier than any other we have, and the Late Giant Purple is also very good, though a doubtful improvement on a good selection of the old Giant or Battersca, and certainly not so large as Connoyer's Colossal. Any variety will grow to a good size if allowed plenty of room, and consequently all the old much-crowded beds should be gradually broken up and the crowns forced. If a new bed is formed each season one of the oldest may be lifted for forcing. Home-raised plants are preferable to any bought from a distance, which are almost certain to have their roots nearly dried up instead of bristling with lively rootlets at planting time, therefore thinly sow a few lines annually, one ounce of seed being ample for a small garden.

BEEF has grown much too strongly this season, especially where sown by the middle of April. We usually sow an ounce of the Egyptian or Turnip-rooted about that time, and the roots obtained are very acceptable for the earliest supply. The first week in May is quite soon enough in most localities for sowing that best of all Beets, Dell's Crimson, or any of its synonyms, such as Carter's Perfection, Suttons' Improved Dark Red, and Veitch's Improved Black, while Nutting's and the strong-growing Pragnell's Exhibition are best sown about the middle of May. The latter is rather too coarse, but from our late-sown bed we were able to pick a considerable number of clean handsome roots.

KIDNEY BEANS.—I still prefer Osborn's Forcing for pot culture, and also for the earliest crops on sheltered borders. Cooling's Ne Plus Ultra will not supplant it for either work. It is not compact enough, nor is it particularly prolific. I should much like to see a specimen of it similar to that which is figured in all the catalogues. For succession and main crop the preference is still given to Canadian Wonder and Negro Mammoth Long-podded. In some seasons the former proves the most profitable, and yields the greater number of exhibition pods. Such was the case during 1881 and 1883, while in 1882 the latter was the favourite. That is why both are grown, and we are then certain to have one of them very good. Carter's Longsword, a white-seeded variety, is a profitable variety, especially if grown for the seeds, these being harvested and sent to the kitchen when Haricot Beans are required. The White Dutch Runner Bean is also preferred to the White Haricot, and is grown especially for the seed. Scarlet Champion and Suttons' Giant White Runner both yield abundance of good pods, and are the best for exhibition purposes.

BROAD BEANS.—The Early Longpod is still the most profitable early Broad Bean. Seville Longpod produces much longer and more handsome pods, and is early, but with me is shy-bearing unless planted out from pots. The finest of all is Carter's Leviathan, this variety under fairly good cultivation producing abundance of long straight pods, which attain a length of 12 to 14 inches, and for exhibition purposes are unequalled. For the main and late crops Broad Windsor Improved and Green Windsor are preferred.

BORECOLE OR KALE is not much grown here. For the earliest supplies I recommend any seedsman's Dwarf Green Curled, while for spring supplies the Asparagus, or Buda as it is also termed, is invaluable. Both the purple and green forms are perfectly hardy, and the late greens yield most abundantly and are delicious. We have had it good in June, and during the spring of 1883 was the only available green stuff besides Brussels Sprouts.

BROCCOLI.—This is always an important vegetable, and not a little depends upon the choice of varieties. Veitch's Self-protecting Autumn has been particularly good this season, whereas last year it was a failure. A few autumn-sown plants a friend gave me formed wonderfully fine heads during September, and were hardly distinguishable from the Autumn Giant Cauliflower. The plants obtained from the early spring sowings hearted-in during November, and were not quite finished when the earliest batch of the invaluable Snow's Superb White were being cut late in this month. The weather not being very severe we shall continue to cut this hardy sort till February, when Veitch's Spring White should be ready for use. The latter is a good variety, one of the best in fact, and to succeed it I have Osborn's Winter White. This dwarf and distinct variety never hearts here until early or late in March, according to the weather experienced, early sowings not resulting in such early crops as the description has led me to expect. We invariably plant a large breadth of Leamington, and unless a very severe frost damages the rather long stems we are certain to obtain a fine lot of heads during March, April, and sometimes into May, a glut rarely occurring. Cooling's Matchless is a fine April variety, so also are Suttons' Perfection and Carter's Mammoth Spring White. Of late sorts Miller's Dwarf, from the fact of its being really dwarf, is also one of the hardiest, and that is why we grow it. It does not produce very good heads. Model is undoubtedly a model late Broccoli, and is perhaps unequalled in its colour and quality, so well is it protected. Veitch's Wilcove Improved is also hardy and good, and the same may be said of Cattell's Eclipse. Suttons' Late Queen is very fine during May, and sometimes in the early part of June, and is one of the hardiest. Ledsham's Latest of All is dwarf and promising in appearance, and if all accounts are true is a very desirable addition to our very latest section. If I could procure the true Early White Cape this would be grown for storing in frames for use during the early winter months, but we get Walcheren substituted for it, and this variety invariably hearts-in when we have plenty of late Cauliflowers. Penzance Early White is a rank-growing useless variety, only a moderate frost cutting it down. Several other catalogued sorts are very good, but I give the preference to the commended varieties above.

BRUSSELS SPROUTS.—Veitch's and Suttons' Exhibition and the Aigburth have all done remarkably well here, but the imported form has not been nearly so profitable as usual. The former were at one time supposed to be too coarse, but no complaint has reached me this season, and now, were I to confine myself to one variety, it would be the Aigburth.

CABBAGES.—Ellam's Dwarf Spring and Reading All Heart have been the best this year, and I much like a small unnamed variety received for trial from Messrs. Sutton, but as this firm does not favour us with the names of their novelties they ought perhaps to be omitted. London or Rosette is still about the best of the Coleworts. Chou de Burghley grew to a great size, much too large in fact, formed large and close conical-shaped heads, and when thoroughly cooked were of very good quality. It, however, does not get beyond the servant's hall, and at that rate does not pay for the room occupied. I have seen plenty of neater heads or mongrels among a breadth of early Broccoli growing near the town of Frome.

CARROTS.—There are not many varieties of these to choose from, and of these few I rely almost exclusively upon the Nantes Horn. It is the best for forcing in frames, and the best for early, main, and late crops in the open ground, all that is necessary being to sow the seeds at intervals from March till late in June, the principal breadth being sown early in the last month. It is preferred to all others in the kitchen, and by sowing frequently we have nearly always fit for drawing an abundance of very tender and sweet young roots. I usually grow a few Long Surrey for keeping in case of failure near the end of the season.

CAULIFLOWERS.—The best of these for growing in frames and

handlights is the Extra Early Forcing, this, I believe, being very similar to Dean's Snowball. It is particularly good for sowing in heat in spring, in the case of plants from autumn-sown seed being scarce. Early London and Dwarf Erfurt Mammoth, the latter being preferred by me, are both good for early crops, and to succeed these Veitch's Pearl is recommended. We found this novelty decidedly good for the main crop, as it produced good heads till long after the autumn and earliest spring-sown plants of Veitch's Autumn Giant were hearting-in. The latter can, as a rule, be had very good until December if sown late in May. Eclipse, in the way of Autumn Giant, is much earlier, and is invaluable in gardens where there are no facilities for raising an early batch of plants of the latter. Walcheren Cauliflower I do not believe in.

CELERY.—Our earliest Celery is secured with the aid of a superior form of the Dwarf White Incomparable, selected by Mr. D. Thomson, Drumlanrig, but as this cannot be bought I should recommend Sandringham Dwarf White or a new variety of Suttons' in lieu of it. Williams' Matchless Red grows to a good size, is of excellent quality, and well adapted for exhibition purposes. The true Leicester Red and Major Clarke's Solid Red are of about equal merit, and both are remarkably solid, crisp, and good. Carter's Incomparable Crimson is also very good, and is perhaps the most hardy of all.

ENDIVE.—Moss-curl is excellent for the earliest crops, this to be followed with either Green-curl or Picpus Green-curl, while for the latest crops the Improved Round-leaved Batavian is invaluable.

LETTUCES.—The very quick-growing Early Paris Market is the best for frames and sheltered borders. Tom Thumb for the autumn, and Hardy Hammersmith to stand the winter, are the only other Cabbage varieties we grow. With regard to Cos varieties, I am completely converted to Mr. Taylor's opinion that the Black-seeded Brown Cos is by far the best variety for nearly all seasons. If greener sorts are preferred, and we generally sow a row at the same time as we do the brown sort, I should recommend one of the many selections of Paris White Cos. Hick's Hardy Green is one of the hardiest sorts we have.

LEEKs.—I am afraid our seed of the new Lyon Leek was "cooked," at any rate none of it germinated, although treated exactly the same as the Ayton Castle Giant and Musselburgh. The latter is not so large as the Ayton Castle, but either are good enough for ordinary purposes. The Carentan is much too coarse-grained, and will not long remain in cultivation.

ONIONS.—I find the White Neapolitan Tripoli early and good, this being followed by the Giant White Madeira, with Giant Rocca for keeping. For spring sowing I like Banbury Improved, this being large and handsome. If larger than this is required Walker's Exhibition should be grown. Besides the foregoing I much like Giant Zittau, believing it to be one of the most profitable sorts catalogued. It is very heavy and keeps well. Brown Globe completes the list.

Most seedsmen now possess an extra good strain of Curled Parsley, and besides this the Fern-leaved variety may well be grown. I prefer the Student Parsnip, and often wonder why so few Parsnips are grown and eaten. Radishes of the Extra Early Dwarf Top type, French Breakfast, and Wood's Frame are good for forcing, and there are several new sorts also good. Wood's is also the best for a sheltered border, and the Long Red is grown to succeed this, and also for late work. The Red and White Turnip varieties are the best for summer sowings. Of Rhubarbs I give the preference to Johnson's St. Martin's for forcing, but it seldom comes true from seed. Royal Albert is also early and good, and Myatt's Victoria grows to a great size.

SAVOYS.—Tom Thumb and Little Pixie Savoys are both excellent, neat-growing, and early. Early Ulm forms a good succession. To follow this we have Dwarf Green-curl, and the latest crops are of Drumhead.

SEAKALE AND ARTICHOKEs.—Seakale is easily raised from seed, but can be grown to a much larger size in one season from small pieces of roots. Globe Artichokes may also be raised from seed, but half of the seedlings are of no value when grown, this being most marked with the Purple Globe varieties.

SPINACH.—The Round or Summer variety is good for either early or late sowings, being quite as hardy as the Winter or Prickly-seeded. A few plants of New Zealand Spinach reared in heat and planted on a sunny border will during the summer yield a great number of shoots at a time when the other sort completely fails.

TOMATOES.—The Dwarf Orangefield Tomato is still one of the best, especially for pot work; and the Large Red, or a good selection of it, such as Earley's Defiance, crops still more heavily both under glass and in the open. Phillip's Perfection is one of the handsomest varieties I am acquainted with, and the quality, too, is first-class. Dedham Favourite is handsome and good, and for all purposes Trentham Early Fillbasket is to be recommended.

TURNIPS.—The Early Munich is much the earliest variety we

have, but that is its only recommendation, as it is very inferior in quality. To succeed this a good selection of Snowball, such as Jersey Lily, may well be grown, while for autumn and winter Veitch's Red Globe is much the best. The hardiest is the Chirk Castle Black Stone.

VEGETABLE MARROWS.—We only grow the Long White. The Custard Marrow is much liked by some, and Muir's Prolific Hybrid is also highly spoken of; it was the raiser's fault that I am unable to speak concerning its merits. As I have already written at considerable length, remarks I wish to make concerning a considerable number of Peas and Potatoes must be deferred.—W. IGGULDEN, Marston.

PROFESSIONAL GARDENERS' FRIENDLY BENEFIT SOCIETY.

ALTHOUGH this Society was established in Leeds and has been successfully managed there by a Committee of gardeners for several years, it is very far from being of a local character. All *bona fide* gardeners are eligible for membership, and a considerable number reside in different parts of the country. It is customary to have an anniversary dinner yearly, at which the Mayor of the town with other influential gentlemen attend, as the Society is regarded as eminently worthy of their countenance and support. The seventeenth meeting of the nature indicated was held on the 11th inst., Henry Oxley, Esq., presiding, supported by John Barran, Esq., M.P., Councillor Loe, and G. W. Morrison, Esq. (Town Clerk). Letters of apology were read from the Mayor, W. L. Jackson, Esq., M.P., and Herbert J. Gladstone, Esq., M.P. There was a very large attendance, including a number of visitors, the representatives of provincial nursery firms, and others, the spacious room being crowded. After the usual loyal toasts the following report of the Society was read by Mr. W. Sunley, the Secretary:—

REPORT OF THE PROFESSIONAL GARDENERS' FRIENDLY BENEFIT SOCIETY

In presenting the seventeenth annual report, your Committee beg to direct attention to the annexed balance sheet, which shows cause for satisfaction.

	£	s.	d.
The Society's income for the past year has been	182	16	10
Its expenditure for the same period has been	156	13	2½
Which leaves a saving for the past year of	26	3	7½
This amount, added to the savings of the sixteen previous years of	£649	2	10
Makes the total amount now placed to the Society's credit of	£675	6	5½

Representing the value to each financial member of £6 2s. 9½d.

Your Committee beg gratefully to acknowledge the very liberal support accorded to the Society by its honorary members, and cordially welcome the five additional gentlemen who have been enrolled during the past year.

The Society now numbers seventeen honorary and 110 ordinary members.

Henry Oxley, Esq., very generously offered to give £5 to further encourage members contributing and reading essays at the monthly meetings. After careful consideration it was thought advisable to apportion this amount into three prizes. Eight essays have been contributed during the year, but only three members consented to enter for competition. These three essays were duly forwarded to the Editors of the *Journal of Horticulture*, who very kindly consented to adjudicate the order of merit. The first prize of £2 10s. was awarded to Mr. George Winterburn, gardener to Lomas Joy, Esq., Weetwood Lane. Subject, "Furnishing the Conservatory."

The second prize of £1 10s. was awarded to Mr. James Inman, Chapel Allerton. Subject, "Cultivation of the Vine."

The third prize of £1 was awarded to Mr. William Jackson, gardener to Henry Milligan, Esq., Benton Park, Rawdon. Subject, "Cultivation of *Eucharis amazonica*."

As these essays are the means of exciting much discussion and emulation, and thereby diffusing much useful knowledge, your Committee most earnestly hope members will continue to render their support in this very important matter. The best thanks of the Society are due to Mr. Oxley for his generosity, and to the Editors of the *Journal of Horticulture*, who have so kindly given their valuable services, also to the several members who contributed the essays.

Your Committee will always endeavour to promote the welfare of the Society, and continue to rely on the kindly forbearance and support of the members generally.

Bacchus Hill, Moor-Allerton,
January 1st, 1884.

Signed on behalf of the Committee,
WILLIAM SUNLEY, Secretary.

The distribution of the above-mentioned prizes was a feature of the meeting, and the Chairman in an excellent and practical address pointed out the great advantages of the practice of preparing such essays both to the writers of them and those to whom they were read and who shared in the discussions thereon, promising also to give a similar amount in prizes to be competed for another year. Mr. Barran in responding to the toast of the borough members said he felt happy in being present among so many of Nature's gentlemen who were not only cultivating plants, but the taste of the people also; and every step taken in gardening tended to elevate and refine that taste. Much fault was found with Parliament as to the way in which its money was spent, but in no department of expenditure had there being more satisfaction than in that which had reference to horticulture. All that had been done at Kew and Battersea Park had been received on the part of the public with the utmost satisfaction. He should be glad to see some of the northern towns, although they had to contend with difficulties of climate, emulating Parliament by doing something in the way of providing flower gardens. Next to the expenditure on education, the cultivation of plants and flowers would be a very great boon to the people, and would be exceedingly well-spent money. Taking it on the whole, there were very few investments which paid better than this, or which tended more to improve the moral tone of the people. Taking a still more narrow view, in everyday life people

ought to be grateful for what was provided by gardeners. There was a good deal of enjoyment to be got out of plants, and whether in or out of doors our happiness was very much increased by the labours of those who cultivated flowers. He hoped the study of horticulture would be developed, and that the people would be induced to contribute rather more freely than they had done towards the attainment of that end. It was of the utmost importance that they should maintain the stability of the Society; and it was to be hoped its usefulness would be extended in the direction of essays on subjects which came within their everyday life.

Some particulars of the Society will be given, but in the meantime its condition and working, as succinctly embodied in a speech by Mr. Sunley, will indicate its character:—

"In responding to the success of the Society in the absence of Mr. Featherstone I will go back as far as 1880. That year the income amounted to £116, and £79 was paid for sickness and death. In 1881 the income was £107; paid for sickness £18; the most successful year the Society experienced. In 1882 the income was £116; paid for sickness and death, £104, that being the heaviest year for sickness and other causes we have had. In 1883 the income was close upon £183, and payments £92. That gives a total saved during the four years of £229 to meet other light expenses. When a member is unable to follow his employment through sickness he receives £13 for the first twenty-six weeks, and 5s. per week as long as he is ill. At the death of a member his widow receives £10. At the death of a wife the member receives £7. At the end of seventeen years there is a saving of £675, and the payments for all these advantages only amount to 13s. each member yearly, except when a death takes place a levy is made of 1s. each for a member, and 6d. for a member's wife."

The meeting was a most enjoyable one—the best the Society has had, and the prize essays will in due time be published in our columns.

CACTACEOUS PLANTS.

GROTESQUENESS of form or habit is rarely found in combination with floral beauty in the vegetable world, yet no family affords more remarkable examples of this union of widely divergent qualities than the great and peculiar Cactus order. In many large groups of plants we find numbers possessing handsome foliage, but having only insignificant flowers, and in many others also when the flowers are more than usually attractive the foliage appears chiefly to serve the purpose of a foil to their rich or bright colours, having in itself nothing of a specially striking nature. There seems to be something of Nature's economy in thus developing one particular quality at the expense of others—a concentration of strength, which probably has a deeper meaning than we can perceive, for it is observable in the animal kingdom as well as amongst plants. The Cactus family is, however, an extraordinary exception, for, whether flowering or not, the majority of the plants constituting it are distinguished by most striking characters. They do not possess beautifully coloured or elegantly formed foliage to recommend them; on the contrary, true leaves are absent from nearly all, but in contrast to some of the most gorgeous flowers produced by plants, we see unwieldy masses of vegetable matter, spherical, cylindrical, or angular, armed with stout and formidable spines, and resembling what we might almost imagine to be the relics of a vegetation belonging to a period long prior to the development of the plant life familiar to us in the present age. Such would be the first impression; but when the brilliantly coloured rose, crimson, purple, or yellow blooms were seen the observer would be led to the conclusion that while the plant was advancing to so high a degree of floral beauty, one portion of its constitution must have been strangely stunted and altered by some external long-continued forces. There is an inconsistency of characters that must impress the least observant, and imparts an interest to the plants which increases with the knowledge we gain respecting them, for they are surrounded as it were by a degree of mystery that always adds a charm to Nature.

Cactaceous plants have therefore much to recommend them to lovers of the curious and the beautiful, but the majority also possess another very valuable character—*i.e.*, they are easily grown, so easily in fact that the cottager who can only devote a small space to them in his window may, and often does, grow many of them as successfully as the greatest magnate in Europe with all the most elaborate horticultural appliances at his command. In the dry and heated atmosphere of a room which is so trying to most plants they are perfectly at home, and their demands upon the attention of their host are so slight they may be left for weeks, nay months, without the smallest supply of water. It is not surprising, therefore, that many of the Cacti are favourites with dwellers in towns, and many a toiler has had his heart lightened by a sight of the lovely flowers produced by his window "Cactus," or has felt the pleasure of exhibiting his vegetable curiosities to his friends. Amateurs, too, in many other grades of life have found in the cultivation of these plants the satisfaction which is derived from the constant study of the wonderful phases of plant-existence; and though it can never be expected that they will rise to a popularity approaching that of the Rose, yet there is a steadily increasing demand for them, and several nurserymen now make a speciality of them. Considerable stimulus has no doubt been given to the culture of Cactaceous plants by the efforts of J. T. Peacock, Esq., Sudbury House, Hammersmith, who, with the aid of his former gardener, Mr. Croucher, formed the largest private collection in this

country, and this together with the wonderful collection at Kew has rendered the best of such plants familiar to Londoners. A large trade too, sprung up a short time ago in "miniature Cacti," and this by bringing a number of forms within the reach of most people at moderate prices has still further assisted in popularising an interesting class of plants. The claims of the Cacti to general notice having been briefly reviewed in the foregoing notes, a slight survey of the family may be now undertaken, commencing with the

STRUCTURE.

The most prominent general character of the plants comprised in the natural order Cactaceæ is the unusually large development of cellular tissue, to which circumstance they in common with some others of different families owe the popular and wide designation of "succulent plants." The stem is, with few exceptions, leafless, and varies in form

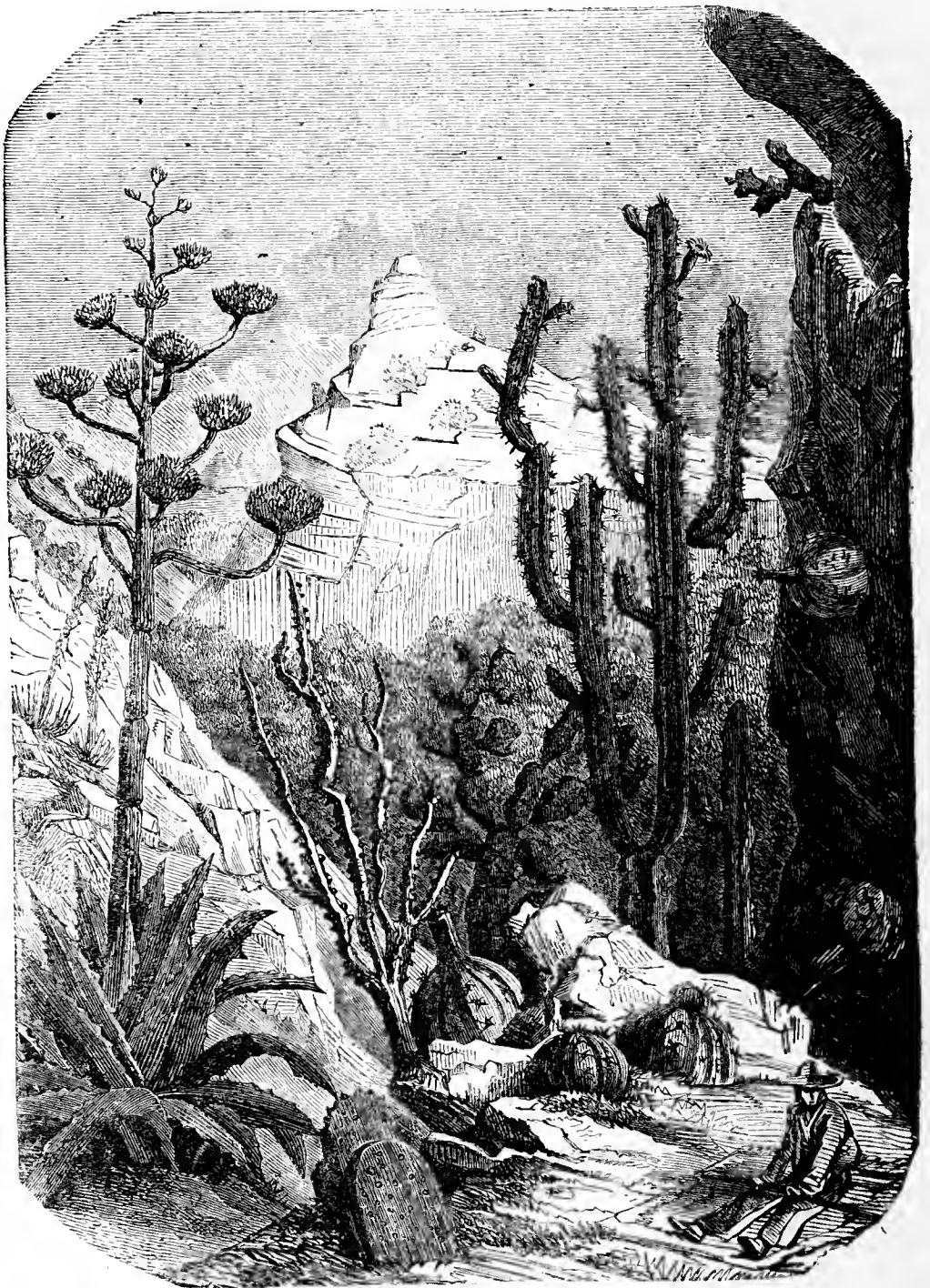


Fig. 6.—MEXICAN CACTI.

from the globular *Melocactus* to the columnar *Cereus*, being generally unbranched, except in the *Rhipsalis*, *Opuntias*, and slender-growing *Cereus*. The surface is either marked with angular ridges from base to summit, upon which are arranged with great regularity a series of clusters of spines varying in size, colour, and number, or, as in the *Mammillarias*, the surface is broken into a number of small rounded projections or *mammillæ*, each crowned with a cluster of spines. These spines in several of the genera furnish useful characters in distinguishing the species, size, colour, and number, being found to be constant in the majority of cases. They are exceedingly numerous, and specimens of moderate size of *Cereus senilis* have been found to have from 50,000 to 70,000. In size, too, the Cacti have a wide range of variation, from some of the diminutive *Mammillarias* a few inches high to the gigantic *Cereus peruvianus* which is found in its native habitat upwards of 50 feet high, and the huge *Echinocactus Visnaga*, single specimens of which have been introduced to this country weighing as much as a ton. These plants contain comparatively little woody tissue except when they are very much advanced in age, the cellular tissue being very largely developed in the

majority of the typical forms, the cells being large and mostly filled with a clear water-like fluid, but in others with milky mucilaginous or slightly acrid juices. There is also usually a quantity of crystals of oxalate of lime, which are readily seen if a stem is cut after being dried. Having no leaves the function of respiration must be performed by the stem; but as this has to serve as a reservoir of nutriment generally exposed to a burning tropical heat, it is obviously of importance that the evaporation

very frequently coloured alike, and only distinguishable with great difficulty. The colours most abundant are shades of rose, crimson, purple, and yellow, some being white and others greenish. Many flowers possess a powerful and most pleasing fragrance, but they are usually of extremely short duration, some lasting but a few hours during the evening or night. The fruit is of a fleshy substance, and in the case of several species, such as *Cereus speciosissimus* and *Opuntia vulgaris*, it is



FIG. 7.—THE SUCCULENT HOUSE AT KEW.

from the surface should be reduced to a minimum. As a means to this end we find that the stomata or breathing pores, which are so abundant on the leaves of most plants inhabiting temperate climates, are in the Cacti comparatively few. To this, together with a peculiar structure of the walls of the cells forming the superficial layer, is due the remarkable heat and drought-enduring character that enables it to live and thrive where most other vegetation would perish.

The flowers differ much in size and colour, but they mostly agree in the large number of sepals, petals, and stamens, both the former

edible, and when well ripened of a very agreeable flavour, somewhat resembling that possessed by some fruits of the Gooseberry family, to which the Cacti are distantly related.

DISTRIBUTION.

North and South America are the principal homes of Cactaceous plants, the greatest strength of the order being concentrated in Mexico, which contains nearly three-fourths of the entire number known. Brazil, Peru, Chili, Guiana, Colombia, and some other districts in South America also

contain representatives, but in relatively small numbers. In Mexico the vegetation assumes an extraordinary appearance owing to the preponderance of the Cerei and other members of the family, where in the several hot, dry, rocky, regions which characterise this portion of the American continent, the Cacti flourish together with Agaves, Yuccas, Dasylirions, Beancarnes, Echeverias, and similar plants of the Xerophilons, or heat and drought-loving type. The woodcut (fig. 6) will convey some idea of the aspect of the vegetation in many parts of Mexico; but one of the most remarkable representations of this scenery is a plate in Julius Fröbel's "Travels in Central America and Mexico," portraying the lower part of the valley of Santa Cruz, in which are shown over fifty "Saguaro trees," as the *Cereus peruvianus* is termed, some very strangely branched near the summit, and attaining the height of from 30 to 50 feet. In the Rocky Mountains some members of the family are found at great elevations, several having been observed by Mr. E. G. Loder as high as 10,000 feet. These being in a low temperature are practically hardy in this country, and form a group of additional interest to the cultivator.

HISTORY.

The Cactaceæ, or Cactææ as this family is termed by some writers, derives its name from the word *Cactus*, under which generic title Linnaeus grouped all the forms that were known in his time, and the name is still popularly applied to plants possessing the general characters of the order. Botanically it is now obsolete, and the species are arranged under other genera, such as *Cercus*, *Echinocactus*, *Opuntia*, &c. The title "Cactus," or "Cactos," was applied by Theophrastus to some kind of spiny plant peculiar to Sicily, which, there appears good reason for supposing, was really *Cynara Scolymus*, the Artichoke, and therefore it was erroneously adopted for a class of plants widely separated from the *Compositæ*. Dioscorides, Athenæus, and Pliny mention this *Cactus*, but apparently referring to the same plant. A plant is also mentioned by Pliny under the name of *Opuntia*, which has been by some supposed to be *Opuntia vulgaris*. The passage runs thus—"About the city of Opus this an herbe called *Opuntia* which men delight to eat; this admirable gift the leafe hath, that if it be laid on the ground it will take root and there is no other way to plant the herbe and maintain its kind."—(*Holland's Pliny*). There is, however, much uncertainty about this, although the *Opuntia* has been long naturalised in Europe. Coming to our own country the earliest record of any cultivated members of the family occurs in Gerard's "Catalogue of Plants" (1596), in which he mentions the *Ficus indica* (*Opuntia vulgaris*) as having been brought from Zante by his servant, William Marshall. In his "Historie of Plantes" (1633) a good figure is given of it, also in Parkinson's "Garden of Pleasant Flowers" (1629) and "Theater of Plantes" (1640), the latter mentioning two forms, major and minor, the Greater and Lesser "Indian Figge Trees." One of these was included in the collection at the Oxford Botanic Garden, for in the catalogue dated 1658 is mentioned the *Ficus indica spinosa minor* of Parkinson. In the succeeding fifty years several species were introduced, chiefly through the Earl of Portland, and to the Royal Gardens, Hampton Court; so that in 1716, when Richard Bradley published his interesting little work on succulent plants, he was able to describe and illustrate five forms, chiefly *Cerei* and *Opuntias*. In the same author's "Philosophical Account of the Works of Nature" (1739) good figures are also given of a *Cereus*, *Melocactus*, and *Opuntia*, with some description and reference to his previous work. During the eighteenth century Mr. Phillip Miller of the Chelsea Gardens brought several Cacti into notice, at least eight being credited to him and described in his "Gardeners' Dictionary" in addition to those already known. By the end of this century, as we find from Wildenow's edition of Linnaeus' "Species Plantarum" (1796), twenty-nine species were in cultivation or known to botanists, and all were arranged under the head "Cactus," the specific names being mostly the same as those adopted now. Martyn's edition of Miller's "Gardeners' Dictionary" (1807) enumerates twenty species as follows: *Cactus*, *Mammillaria*, *Melocactus*, *Pitajaya*, *heptagonus*, *tetragonus*, *hexagonus*, *pentagonus*, *repandus*, *lanuginosus*, *peruvianus*, *Royeni*, *grandiflorus*, *flagelliformis*, *parasiticus*, *pendulus*, *triangularis*, *moniliformis*, *Opuntia*, *Ficus indica*, *Tuna*, *cochinellifer*, *curassavica*, *Phyllanthus*, *spinosissimus*, *Percskia*, and *portulacæfolius*. From Aiton's "Hortus Kewensis" (1811) we learn that twenty-four of these were cultivated there, while when Haworth's "Synopsis Succulentarum" was issued in 1819, about forty-five species or varieties were known.

The increase from this time was rapid, for Sweet's "Hortus Britannicus," 1826, enumerates ninety-four as in cultivation, while Decandolle's "Prodromus," published two years after, describes or mentions 183 under seven genera. The number of botanical travellers in America during the following twenty years added greatly to the knowledge of these plants, and by 1840 there were nearly 400 forms in cultivation (*Paxton's "Botanical Dictionary"*), which by 1850, when M. Labouret issued his elaborate "Monographie des Cactées," had increased to 670. Since then many others have been discovered and introduced, and a few years ago Mr. Jackson of Kew estimated the number of species at about 950, though at the present time they probably exceed 1000. Comparatively few large collections of Cacti have been formed, and in recent years there has been none to equal those at Sudbury House, Hammer-smith, and in the Royal Gardens, Kew. In the latter establishment the handsome house devoted to succulent plants has long been one of the chief attractions to visitors, who can there inspect a conspectus of one of the most extraordinary types of vegetation upon the globe. A view of a portion of this house is given in fig. 7, showing the *Cerei*, *Melocacti*, and other members of the family, nearly 300 species and varieties being included in the collection.—LEWIS CASTLE.

(To be continued.)



THE NATIONAL CHRYSANTHEMUM SOCIETY will hold their annual general meeting at the Old Four Swans, 84, Bishopsgate Street Without, at seven o'clock precisely, on Thursday evening next, the 17th inst. The President of the Society, E. Sanderson, Esq., will take the chair. The business will include reading the minutes of the last meeting, the report and balance sheet of past year, election of officers and Committee for 1884, and to consider suggestions that may assist the Committee in compilation of the schedule for 1884.

— THOUGH not a very common plant *LONICERA STANDISHI* is perfectly hardy in our climate, and merits a place in every garden where room can be spared in company with *Jasminum nudiflorum* and the well-known *Chimonanthus fragrans* and *grandiflora*. Flowering in front of No. 1 museum at Kew, passers-by get a good share of the delicious fragrance emitted by the small white flowers. Unlike the *Jasmine* it has a good clothing of dark green leaves, which is a character greatly in its favour.

— "A. L. G.," writing concerning FRAGRANT ROSES, remarks:—"If anyone fond of highly scented H.P. Roses does not possess *Ulrich Brunner* I strongly advise them to get it. It is a very bright, clear, cherry-rose, with enormous flowers of exquisite scent, a really good variety; and I may mention as a very fragrant Rose, though not a H. P., that grand climber *Cheshunt Hybrid*. I venture to call Mr. Simons' attention to a slight mistake in his list (page 4). *Marie Van Houtte* is a Tea Rose, at least the one I possess is." Perhaps it was a misprint for *Louis Van Houtte*.

— THE beautiful stove plant *TILLANDSIA LINDENI* is referred to approvingly on page 24 as bearing light blue flowers. A small plant has for some weeks been flowering in Mr. Major's multum in parvo garden at Cromwell House, Croydon, the colour of the flowers being of the deepest blue imaginable. This is no doubt the true variety, *T. L. vera*, than which few if any blue flowers are richer. It is strikingly handsome, the white centre being very clear, and appearing to render the dark glowing petals additionally attractive.

— A WELL-ATTENDED meeting of the LIVERPOOL HORTICULTURAL ASSOCIATION was held on the 12th inst. in the Free Public Library, William Brown Street, under the presidency of Mr. Thomas White. The subject under notice was an essay on "Forcing Roses" by Mr. W. Bardney, Norris Green, who treated the matter in his usual practical manner. At the conclusion of a long and interesting discussion a hearty vote of thanks was unanimously accorded Mr. Bardney for his excellent paper. Mr. Mark Wood, gardener to Col. Wilson, received a vote of thanks for a box of very fine Tomatoes, the variety being *Trophy*. The fruits were of fine colour and large, fully equal to many of the handsome examples we are accustomed to see at summer exhibitions. The usual compliment to the Chairman brought to a close a most interesting and instructive gathering.

— "B." considers *IMANTOPHYLLUM MINIATUM* one of the best plants for forcing into bloom about Christmas and onward that can be had. It is free-flowering, and merely requires to be grown throughout the winter months in a growing temperature to insure it flowering annually at the dull season. In summer it is best grown in a greenhouse. Plants which flower now do so again about June. The flowers are admirably adapted for vase-decoration. We employ loam and crushed lime rubbish as potting material, and do not stint the water.

— IN reference to CELERY CULTURE IN AMERICA a Mr. Stearns at a recent meeting of the Michigan Horticultural Society gave an account of Celery culture at Kalamazoo, where 500 acres were raised last year and five to eight tons shipped daily from each of the two express-offices. "The Celery is packed in boxes made especially for the purpose. The producers receive twenty cents a dozen bunches. The seed is sown in a bed prepared for the purpose; the plants not transplanted until they are put in the trenches. A layer of manure is spread in the bottom of the trench before the plants are set; the plants are set 6 inches apart in the row. For the early crop the seed is sown in hotbed and trans-

planted about the 1st of May. In Kalazamoo but little is stored by the producers; that which is stored is packed in pits covered with low sheds. For a few dozen one of the best ways of storing is to put in a box in the cellar on the bottom of which is a puddle of earth and water to cover the roots. Professor Tracy said marsh Celery does not keep so well as that raised on upland..”

— “M. S.” writes with regard to HELLEBORES:—“We are having enough pedigrees about these plants to last us for at least twelve months and confuse us still longer. A fine plant exhibited in the greenhouse at Kew growing in a pot, presented by Mr. Brockbank, and named *H. niger angustifolius*, Brockhurst var., is certainly handsome and well worth growing for greenhouse decoration, it having over 100 flowers open at present. Another in flower in the Heath house, and said to be the true “St. Brigid’s,” will puzzle many critical florists to distinguish it from the above, the only difference at present being to a casual observer the paucity of leaves on “St. Brigid’s” while the Brockhurst var. is well clothed, but they are otherwise alike. Both undoubtedly differ from the true *altifolius* in having very much narrower leaves and less rose blush on the petals.”

— “THE ROSARIANS’ YEAR BOOK FOR 1884” (Bemrose and Sons, 23, Old Bailey) is now issued, and contains as its frontispiece an excellent portrait of J. McIntosh, Esq., Vice-President of the National Rose Society. The articles are the following:—“The Rose Election of 1882 Compared with Experience,” by E. R. Whitwell; “Roses on their own Roots,” by J. Brown; “The Battle of the Stocks and Buds,” by D. T. Fish; “Old-fashioned Roses,” by Julius Sladden; “Roses in 1883,” by the Editor, the Rev. H. Honeywood D’Ombrain; “Roses in Cheshire,” by T. B. Hall; “Gossip on Scotch and English Rose Shows,” by Alexander Hill Gray; “Rose Election of 1883,” by Joseph Hinton; “Real Autumn-Flowering Roses,” by G. Paul; and “The Rose Weather of 1883,” by E. Mawley. All these are instructive and interesting, but they are sober, and we miss the leaven of humour which has generally characterised some of the articles.

— MR. JOSEPH MALLENDER, Hodsock Priory, Worksop, Notts, sends the following record OF THE WEATHER IN 1883. Total duration of sunshine 1330 hours, or 30 per cent. of the possible duration. There were seventy-six sunless days. Total rainfall 29.83 inches. Greatest fall in twenty-four hours on the 25th of May 1.09 inch. Rain fell on 194 days. Mean temperature 47.8°. The warmest day was the 29th of June; mean temperature 68.4°. The coldest the 10th of March; mean temperature 21.7°; mean temperature of air at 9 A.M. 48.3°; mean temperature of soil 1 foot deep 48.6°; number of nights below 32° in shade fifty, on grass 124; highest reading of barometer on the 4th of March 30.745; lowest reading the 2nd of September 28.656. The principal features have been the excessive cold in March, the dry period from the middle of February to the middle of April, the absence of any hot weather, and the scarcity of sunshine in summer, a wet September, an unusual absence of frosts during the latter part of the year, and the severe gale in December.

— THE same correspondent records THE WEATHER IN DECEMBER LAST as follows:—Total duration of sunshine in the month 27.8 hours, or 12 per cent. of possible duration, the most in one day; on the 4th and 6th 4.4 hours. There were sixteen sunless days. Total rainfall 1.17 inches. The greatest fall in twenty-four hours was on the 16th, 0.24 inch. Rain fell on nineteen days. Wind principally southerly to westerly; average velocity 14.5 miles per hour; velocity exceeded 400 miles on fourteen days. The mean temperature of the month 40.4°. Warmest day, 14th; mean temperature 51.8°. The coldest day the 6th; mean temperature 33.7°. Mean temperature of air at 9 A.M. 39.5°; mean temperature of soil 1 foot deep 40.5°; number of nights below 32° in shade two; on grass sixteen. The highest reading of barometer on 7th 30.602; lowest reading on 11th, 29.355. The month was remarkable for the high night temperature and the small number of frosts in the shade. The rainfall was less than in any of the previous eight years except 1879, when it was the same. Sunshine more than last year, but less than in 1881. The gale on the 11th did much damage. Many trees were blown down.

— WE learn from the *Herts and Essex Observer* that the eighth anniversary DINNER AND ENTERTAINMENT in connection with the sick fund attached to the Sawbridgeworth Nursery was celebrated by the

employés in a most agreeable manner on Thursday evening, the 3rd inst. The fund was originated at the instigation and through the efforts of Mr. Wm. Camp, Messrs. T. Rivers & Son’s able and obliging manager; and the firm, highly convinced as they are of the desirability of encouraging provident habits, have not only given it their hearty concurrence but a judicious modicum of material support, which has manifested itself in more ways than one, and especially on the occasion of these annual reunions. Between fifty and sixty sat down to dinner, the chair being occupied by Mr. Wm. Camp and the vice chairs by Mr. W. Tarling and Mr. J. Dedman, department foremen. A number of toasts were proposed and duly responded to, and the Chairman stated that the institution was in a flourishing condition, notwithstanding the drain upon their resources, for there had been more sickness last year, and consequently additional claims, than had been known for a long time past. But after all demands had been met, there was still an increase of the balance in the post office savings bank. The Hon. Sec. of the fund is Mr. W. Carter, whose ready services in its behalf are highly valued. An extremely pleasant entertainment of music and singing followed and concluded a most agreeable evening.

— PART 86 of Boswell’s and Sowerby’s “ENGLISH BOTANY” continues the descriptions and illustrations of the Ferns, comprising *Polystichums*, *Woodsias*, *Cystopterises*, *Athyriums*, *Scolopendriums*, *Pterises*, and *Adiantum*. The *Equisetaceæ* are also commenced, *Equisetum maximum* and *E. arvense* being very fully described. The plates continue as faithful and praiseworthy in general execution as those we have previously referred to.

— MESSRS. ELLWANGER & BARRY, Rochester, New York, thus describe two new American Roses that have been raised by them:—“The HYBRID PERPETUAL ROSE MARSHALL P. WILDER was raised by us from seed of *Général Jacqueminot*, and has flowered three seasons, giving us ample time to judge correctly of its qualities. It is of vigorous growth, with healthy foliage; flowers large, semi-globular, full, well formed; colour cherry carmine, much like a light-coloured *Marie Baumann*, or a shade deeper than *Marie Rady*, and very fragrant. In wood, foliage, and form of flower it resembles *Alfred Colomb*, but the seedling excels that famous variety in vigour, hardiness, and freedom of bloom. The past season it continued to bloom profusely long after the *Remon’ants* were out of flower. In brief, it may be described as an improved *Alfred Colomb*.”

— “THE TEA ROSE ROSALIE, OR FAIRY QUEEN, was raised by us from seed of *Marie Van Houtte*, and has been tested in our houses for some time. It is of slender yet healthy growth; foliage small, dark green; flower small, a little larger than *Paquerette*, and of a deep pink colour, about the shade of *Madame Lambard*. It is very pretty in bud, and the open flowers are of good substance, and remain perfect for a long time. It has a pleasing fragrance. One of its prominent traits is remarkable freedom of bloom, every shoot producing a flower. We consider it a distinct and charming miniature Rose, and a valuable addition to the list of varieties suitable for forcing.”

PRUNING AND DRESSING GRAPE VINES.

YOUR correspondent “Ipswich” is good enough to commend my article on this subject (page 523), but criticises some of my observations, and also indulges in a little mild form of humour at my expense.

What I term “miniature sap reservoirs” are badly ripened laterals, these being disbudded to one or two buds, the latter thus being greatly assisted by the stored-up sap that has never solidified. If we cut away these laterals we not only destroy the sap contained in them, but the Vines also lose much more by bleeding. Soon after the Vines are well into growth I have found these disbudded laterals perfectly dry, and if they have not acted as “miniature sap reservoirs” what has become of the sap? What would “Ipswich” do with badly ripened Vines, say any which if pruned at the present time would at once start bleeding profusely?

I am of opinion that very little is gained by cutting a large bud in the case of such free-fruited sorts as *Black Hamburgh*, as those smaller buds nearer the base of the laterals will, if the sap is concentrated on them, give quite as good bunches—I might say better, if somewhat smaller, as they are frequently more compact and handsome. The larger buds may perhaps produce a stronger growth with possibly a greater number of bunches, but this and the presumably stronger root-action are doubtful gains. It will be seen my argument is that the character of the bunches is not wholly determined by the parent leaf, but is rather determined by the pruning and amount of stored-up sap. I like to prune to a perceptible bud, this sometimes being an inch or more from the rod, sometimes less; and other conditions being favourable, this comparatively small bud

developes into a good fruiting shoot. If we did not prune to near these basal buds it would be found if they break at all they would seldom produce bunches. The passage, therefore, relating to this part of my subject, and which "Ipswich" selects as serving to confute my own argument, really does no such thing—at any rate I fail to see that it does. That the terminal bud will in every case break the strongest I do not dispute, but repeat that this is due to the concentration of the sap rather than to the superior size of the bud. Perhaps I did not write plainly, but I cannot help thinking the sense of my remarks might have been evident enough to "Ipswich."

I must admit having a good laugh at the way in which "Ipswich" treated my remarks upon the clay and tar dressing. I certainly ought to have remembered how differently we are all constituted, and that what is agreeable to one is decidedly obnoxious to another. For my part I am so well pleased with the simplicity and effectiveness of the mixture that tar is almost an object of veneration with me; and this ought not to surprise "Ipswich," since it appears that he, too, has had to contend with the much-to-be-dreaded mealy bug on Vines. I will, however, readily withdraw my remarks as to the superiority of clay and tar to all other mixtures as far as the obnoxious character is concerned, and content myself with describing it as the simplest and best remedy. Perhaps "Ipswich" by way of return will give us the benefit of his experience with mealy bug on Vines, as, although ours are clean, there are yet numbers of growers who might be glad to know the remedy he evidently considers superior to that with which we are so well satisfied.—W. IGGULDEN.

OUR ORCHARDS AND PARAFFIN.

ON page 526, under the above heading, your correspondent, "A Foreman," in detailing his method of mixing colza and paraffin oils, and applying the same, apparently indiscriminately, to a varied collection of orchard house trees, asserts "it (the oil) is not injurious to fruit or wood buds." Yet in the next paragraph I read, "If any of your readers would like to try the experiment I would advise them to 'taste and try' before they buy, and not endanger their crops and trees." Will "A Foreman" kindly inform your readers whether any Peach and Nectarine trees in the orchard house of which he speaks were dressed with the oil over old and young wood alike, and if so whether the "crop and trees" suffered during the following season in consequence of such dressing? To recommend in the pages of your widely read Journal such drastic measures (unless entirely justified by results) is to incur very grave responsibility, and is, I fear, very apt to mislead young beginners in spite of the saving clause "taste and try before you buy."—T. W.

SNOW'S WINTER WHITE BROCCOLI.

THE fact that I am now day by day cutting very beautiful heads of this Broccoli reminds me that I have an act of justice to perform to the firm of Messrs. Nutting & Son, seedsmen, of the Barbican, London. In the *Journal of Horticulture* at the end of 1882 I called attention to what I considered a likeness between Veitch's Self-protecting Broccoli and the variety of Snow's Winter White Broccoli that I used to know about twenty-five years ago. There appeared to me a great similarity both in manner of growth, time of coming in, and character of heads, and I could not resist saying so in the Journal. During the week following I received from the Editor a packet of seed with the following explanatory note: "Sir,—We enclose a small packet of Snow's Winter White Broccoli that your correspondent 'P.' will find, we believe, the same as he knew twenty-five years ago. We should like him to try it.—Yours obediently, Nutting & Sons. December 7th, 1882." Well, I sowed this packet side by side with my other Broccolis, and especially with a sort of Snow's that a brother gardener told me he had direct from Wrest Park, where Snow's Broccoli originated. These two are exactly alike in manner of growth, time of coming in, and form and colour of heads, and are, I firmly believe, the real old form of Snow's Winter White Broccoli. Anyone who has grown Snow's Broccoli will have noticed that from however pure a strain of seed (I noticed this peculiarity in the olden days) there are plants with slight differences of growth, both as to form and the wrapping-up of the flower heads. Some are paler in colour, grow more upright, and wrap the flower heads with a twist or corkscrew-like arrangement of the leaves; others are more spreading in their growth, are of a deeper green colour, and the centre, where the flower head comes, is arranged simpler as to the disposition of the leaves. It is difficult to describe on paper just the precise differences there are between these two members of the same family.

Now, Veitch's Self-protecting Broccoli appears to me to be a well-selected form of the pale-coloured twisted-centred Snow's. I desire the above words "appears to me" to be italicised, in order to protect myself from the least suspicion of unfairness to Messrs. Veitch as to the origin of their Broccoli. I am, however, satisfied that the variety of Snow's Winter White Broccoli which Messrs. Nutting & Sons have sent to me is true; and I am confirmed in that judgment by one of the chief head gardeners of our neighbourhood, who walked with me through both plantations of Broccoli only the last week, and who was delighted to find that an old favourite vegetable was still to be had true as in past days.—P.

CATCHING MOLES.—More than a year ago I saw a book in a shop in Huntly entitled "Moles and Mole-catching," by the mole-catcher to

His Grace the Duke of Devonshire, Chatsworth. Although only about the size of a child's primer and of twenty-six far from closely printed pages, I at once bought it, the price being 1s. It tells of the habits, food, and breeding of moles, &c. As it was the catching that I was most interested in, I saw the leaves turning over too fast for much to be given about the mode of catching. On coming to the last paragraph it had these words: "We shall not attempt to give full instruction how to catch them, as no one will expect more for the price of the present book; neither would it be fair or reasonable in the interest of men who, like ourselves, have given time and money to learn the business, and are dependent upon obtaining a livelihood from it. . . . Therefore, we shall not be considered uncharitable if we stop here." Have you ever read anything like the above? I never did. It is wide asunder as the poles from the mode of teachings of the *Journal of Horticulture*. Can any of your readers give us an article on how to catch moles, or tell of a book that gives the information?—JAS. SHEARER, Cairnie.

EUCCHARIS SANDERIANA.

FOR this beautiful stove-flowering plant we are indebted to the enthusiasm in the work of plant-collecting and introduction exhibited by Mr. F. Sander of St. Albans, whose labours are devoted almost as much to the discovery of useful plants generally as they are to that of Orchids. Mr. Sander has been instrumental in bringing within reach of English plant-growers many plants of first-rate quality, and among the best of these must be numbered the Eucharis to which his name is attached. The disparaging comments to which this Eucharis has been subjected by several writers are perhaps a little premature. We have not had the plant long enough to warrant us in giving a decided opinion of its merits as a garden plant when compared with the well-known *E. grandiflora*, better known as *E. amazonica*. The capabilities of a plant are not always fully revealed under the treatment to which it may be subjected when first introduced. It would not be difficult to point to many instances like this, and in the case of many plants, the qualities of which are now generally admitted to be first-rate. What has been said against *E. Sanderiana*, however, is quite exceptional when weighed against the high encomiums it has won from others, and so far as our experience goes this Eucharis is destined to become a great favourite. "Comparisons are odious," and the condemnation of new plants because they are not apparently as good as old ones is but a poor way of measuring the worth of the new-comers. Judged by what is at present known of *E. Sanderiana*, apart altogether from what it is when placed by the side of other species, its free-flowering character, the beauty of its blooms, and the ease with which it may be grown and flowered without any extraordinary or "special" treatment, are such as should recommend it to all growers. Already the same plant has bloomed three times in one year, and the flowers have lasted as long, both on the plant and when cut and placed in water, as other Eucharis flowers do. For *E. Sanderiana* precisely the same treatment as that given to *E. grandiflora* will be found most suited; indeed, we may say the whole of the known species of Eucharis require the same treatment as regards soil, temperature, and water. It has been said of this new species that its capabilities will not be properly known until it has been tested by the market growers, and without endorsing this view we may say that the effect of liberal cultivation may be to reveal even better qualities than those our at present short acquaintance with it has brought out.

We cannot do better than quote Mr. Baker's descriptive remarks on the botanical characters of this plant. He says:—"This new Eucharis will no doubt be a very popular plant. It has completely the habit and foliage of the well-known *E. grandiflora*, but the corolla is almost entirely adnate to the dilated upper portion of the perianth tube, leaving only a narrow collar-like free border, upon which the distinct portion of the filaments is inserted. It comes from the same country as *E. grandiflora* and *E. candida*—viz., New Grenada." The flowers are pure ivory white with yellow filaments, and are borne on a scape some 15 inches in length, strong scapes bearing about five flowers each. So far the flowers have been produced in the winter months.

Before leaving this subject a few words on the cultivation of Eucharis grandiflora may prove useful to those whose success in its management is not satisfactory. The most suitable compost may be formed of strong rich loam two parts to one part of leaf mould and coarse sand, with a little decayed cow dung. The pots should be sufficiently large to allow the roots to ramble a little—say a 12-inch pot for half a dozen bulbs. The bulbs should be buried in the soil, the neck just peeping above the surface. Deep potting is one of the secrets of Eucharis culture. The drying-off treatment has almost exploded, it having been proved that these plants do not require so much rest as such treatment would imply. A temperature of 65° to 70°, rising to 80° in summer, will be found best suited to these plants. After flowering water should be withheld for a week or two; at all other times a liberal supply is necessary, as these plants are always growing. Where grown in large quantities the bulbs are often planted out in beds beneath which hot-water pipes are placed, but as good results are obtainable if the bulbs are kept in pots and plunged in a tan or dung bed. If potted in good soil in the first instance it will not be necessary to do more than top-dress the plants annually, repotting only when the bulbs are overcrowded. Liquid manure may be given when the flowers spikes begin to appear. If placed in an intermediate house to develop their flowers a longer display and blooms of better substance will be the result.

E. candida, about which there are many conflicting opinions, owing to its having been confused with the *Calliphrurias*, to which it bears a

close resemblance, is a distinct and beautiful species, yielding under good culture several crops of flowers of the purest white. When well grown the scapes bear as many as ten flowers each. This plant was introduced in 1851 by M. Linden, but disappeared shortly afterwards to be replaced by a species of *Calliphrya*—*C. subdentata*, which was introduced as the lost *Eucharis*, and for a long time was cultivated as such. As a garden plant it is much inferior to the *Eucharis*, and, moreover, is rather difficult to flower. Mr. Bull in 1879, and Mr. Shuttleworth

large growers the Auricula and Carnation shows would lose much of their attractiveness. But what, I take it, "X." complains of is that large growers compete in classes where they really ought not to be. What does Mr. Douglas say in reply? "In order to keep the *great growers*" (the italics are mine) "*from competing against the smaller ones*," exhibitors in classes A and B cannot compete in C and D." But has this been found to be the case in practice, in the Auricula Society at all events? I have before me your issue of May 3rd last, in which your

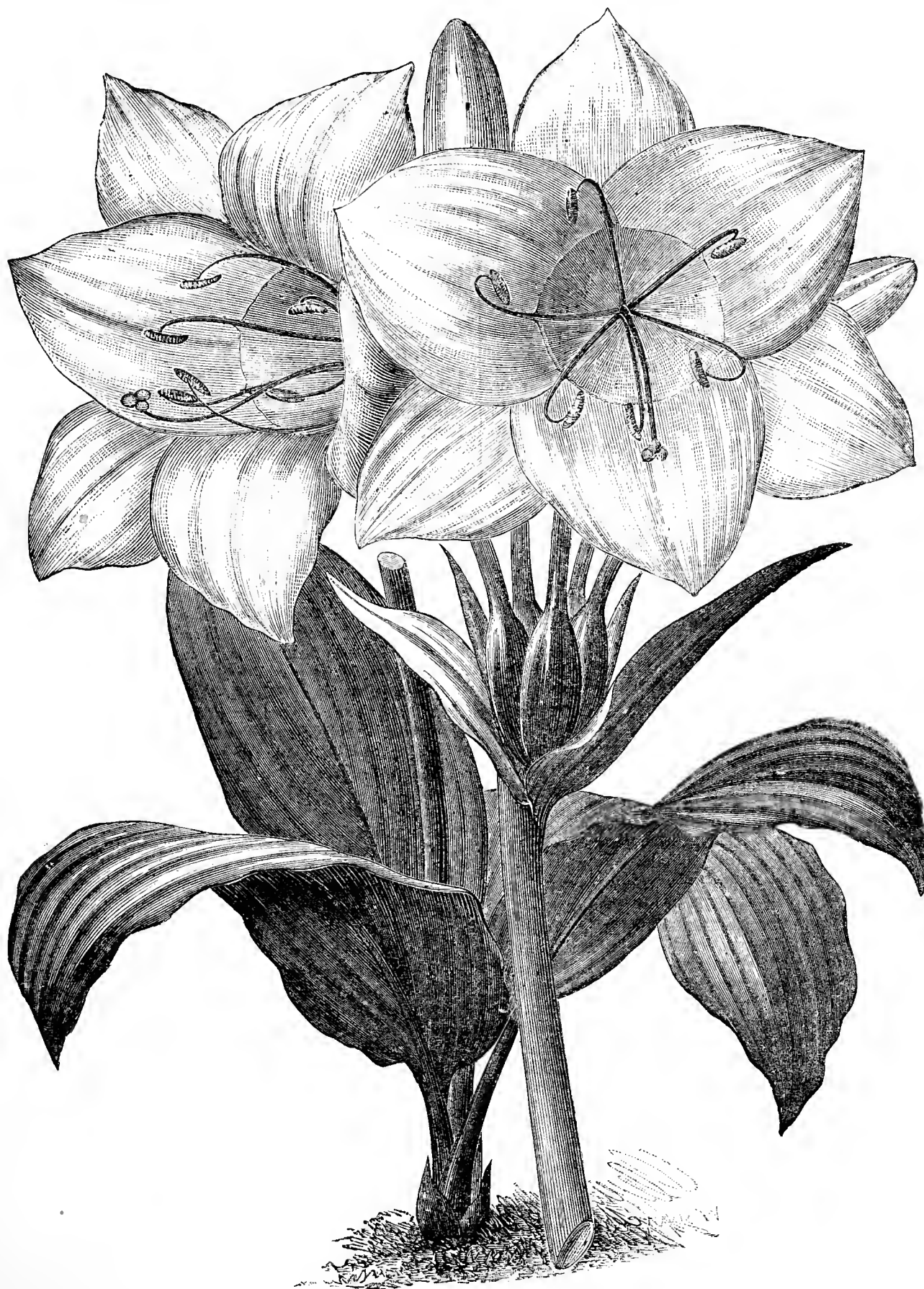


FIG. 8.—EUCCHARIS SANDERIANA.

more recently, succeeded in obtaining bulbs of the true *E. candida*, which is now becoming as popular as its merits deserve.—W. K.

[For the woodcut (fig. 8) representing a plant of *Eucharis Sanderiana* in excellent condition we are indebted to Mr. W. Bull, King's Road, Chelsea.]

SPECIAL SOCIETIES.

I FULLY agree with the principles enunciated by Mr. J. Douglas on page 14 as to the undesirability of creating a monopoly for inferior productions. I concur with him that were it not for the support of the

esteemed contributor "D., Deal," writes on the Auricula Show as follows:—"In the class for four and pairs there were eight exhibitors, although I cannot but think unfair use was made by some exhibitors of the classes. I have said that in the classes of four and two plants exhibitors showed who I do not think in all fairness ought to be there. When one states that 'he' has an over-stock of 1000 plants that he wants to dispose of, it cannot but be that he must swamp the young exhibitor who, with his forty or fifty plants, is desirous of gaining a prize. When classes are made for the special purpose of allowing small growers to compete, I hardly think it is desirable for the large growers to enter."

These extracts speak for themselves, and really bear out the complaint.

of "X." that the regulations do not hinder a few growers sweeping off all the leading prizes. There should be some rule to prevent such a state of things, and Mr. Douglas will at once see the justice of this suggestion. I wish the Society every success, but such matters as the one under notice do much to cause distrust and dissatisfaction in more quarters than one amongst would-be supporters and exhibitors.—AURICULA, *North London*.

I DO not wish "X." to think that I take exception to anything he or she may be pleased to write. If "X." writes for information why should anyone take exception? I would like to know who are the numerous growers that are fearful lest the expenditure on the special societies will be greater than the results obtained. They are evidently not members of the societies, at least I think not, else why should they go to "X." about it instead of expressing their alarm at the meetings of the societies? Those who undertake the management of the societies are surely not expected to make any guarantee of that kind. I am sure I never gave it a thought. "X." is also fearful that the said societies are not of national utility. Dear me! why should they be of national utility? A few old fogies are fond of Auriculas, Carnations, &c.—so very fond of them that they go to the trouble to promote special exhibitions of them, thinking that a certain portion of the public would be pleased to see them. The public, or at least a portion of it, see and applaud. The fogies are satisfied, and do not trouble their heads about "national utility." Special societies, or any kind of societies for that matter, always increase the number of growers; it is in the nature of things that it should be so. Surely no reasonable person need ask for "conclusive evidence" upon what is well known to be a matter of fact. Whether it is "commensurate with the outlay" is another thing.

Your correspondent devotes a few lines to criticising the schedules sent to him, and gravely asks why in certain classes "one grower is allowed to take all the prizes offered?" That is just the very thing he cannot do, although he has a chance to try. If he were successful in doing so the defeated exhibitors would carry him shoulder high round the building, and the victory would be proclaimed from Land's End to John o'Groat's. Fancy one man taking thirty-two prizes in four classes! They are the most interesting part of the exhibition, and no exhibitor that I am aware of ever asked to have them altered. I expected "X." would have sent me his name and address, and would have made some useful suggestions, but I am much disappointed.—JAMES DOUGLAS.

CHOU DE BURGHLEY.

I AM pleased to find your three correspondents are of one mind as regards the subject under notice. On page 511 of your issue for December 13th we have it clear that Mr. Abbey's experience respecting this vegetable has been formed during the present season, for he says:—"I thought if Chou de Burghley were no better than these it were poor indeed; hence it was through prejudice condemned before trial, and I certainly was not prepossessed in its favour by what others had to say in its commendation. To solve matters to my own satisfaction I procured a packet of seed, sowed part in March and part in April." This, I presume, was March and April last. Previous to this Mr. Abbey appears to have regarded his now favourite vegetable as a "bastard," and identical with those we are all accustomed to find amongst Broccoli. On page 4 Mr. Abbey says:—"Lastly I may inform 'A Working Man' that I have been acquainted with Chou de Burghley since 1878, when it was awarded a first-class certificate by the Royal Horticultural Society, and there surely has been ample opportunities of testing its hardiness since; but it is only this season I gave it a fuller trial to test its merits." What I had was the true variety, and, as before, I repeat it is a coarse vegetable. I never for a moment suspected Mr. Abbey to be a "cook," but I know that most gardeners are equal to the occasion when required. I am quite willing to admit that I am in no way capable to judge the merits of this wonderful Chou de Burghley if such delicious Cabbages as Ellam's Early, Little Pixie, and Coleworts are so strong-flavoured as to impair my taste. How many tastes have been impaired, I wonder, before Chou de Burghley came into existence with its strong flavour?

As to the time of boiling, it appears to me that Mr. Abbey and your other two correspondents possess 'cuteness far exceeding that of "A Working Man," or even the raiser, for they have been 'cute enough to discover how to boil it as "tender as a chicken" in thirty minutes, while the raiser cannot manage it in less than "one hour and twenty minutes," according to his statement in a contemporary.—A WORKING MAN.

THIS vegetable has been duly criticised, much praised, and even abused. Making much allowance for latitude and nature of soil I thought it unfair to give a verdict on its merits before this season. But now having tested it I am of opinion that it is an excellent vegetable, not at all unlike the Couve Tronchuda when properly cooked; and so far as its requiring one hour and a half to boil till soft and melting as marrow, only half an hour was allowed here, which cooked the heads to perfection. The Broccoli in the centre was formed about the size of a small egg, and of a decided Broccoli flavour. I never doubted what Mr. Gilbert said regarding his novelty, but believed it quite possible that Chou de Burghley might change its character in our soil and climate. Mr. Gilbert has several times favoured us with samples of products, and notably with a number of varieties of Melons raised by him, all of which were equal to what he described them to be, his selection of Victory of Bath being equal to the best Melons I had tasted before and since I received that kind from him.

With vegetables much depends on the cooking, and the most and best cooked vegetables may be met with in noblemen's and gentlemen's houses, where it is not uncommon to leave that important business to underlings who have never seen vegetables properly cooked, hence a bad name is given to really valuable articles, Potatoes especially. The Chou de Burghley here was placed in boiling water after the heads had been well washed in salt and water, and half an hour afterwards they were strained and served. Some weeks ago they probably would have required more boiling.—M. TEMPLE.

BOTHY LIFE—ROOMS AT KEW.

THE Editor of the *Journal of Horticulture* deserves the thanks of all for allowing the grievances of the young gardeners at Kew to be fully stated. These grievances are by no means of an imaginary character, as anyone may prove who will take the trouble to make inquiries. Whether the remedy should take the form of a bothy or an increase of wages is, I think, open to discussion. It is a most unwarrantable assumption on the part of "Boss" to suppose that these thirty men could not be housed together without making a sort of pandemonium. "Boss" would do well to remember that they are governed by stringent regulations. It is not necessary to commit a great offence to insure a severe reprimand, generally accompanied with the intimation that the second offence will terminate further service in the garden. The young men accordingly adapt themselves to the rules or the establishment, and there is no reason to suppose that they would not be equally attentive to bothy regulations, as the foreman might with advantage act the part of monitor. As to the moral side of the question, in my opinion it would be a decided improvement, for the habits and characters of some of the people that many of the young men are compelled to lodge with are very unsatisfactory. There is one thing in connection with a residence for the young men that would prove an immense benefit to their mental and physical health—I mean a good bath. This could be easily and cheaply constructed. An ample supply of water is obtainable, and this, together with well-cooked and wholesome food, would assist greatly in preventing the frequent loss of health that many suffer who go to Kew for twelve or eighteen months. On the whole I am inclined to think a bothy would act well and be of great advantage to the young men. In the absence of such accommodation the wages should be increased. The effect of the present rate of wages is to virtually exclude a numerous body of deserving young gardeners—i.e., those who cannot draw upon their relations or friends.

In my opinion it is a mistake to admit very young men to Kew. I am convinced that older men, say from twenty-two and upwards, would be in every way more satisfactory, as the special knowledge obtainable at Kew would be far more valuable as a finish to a gardener's education.

Will "Libertas," who defends the existing system, undertake to prove that 16s. per week at Kew are equal to 16s. in a private establishment? Assuming that 16s. with bothy, vegetables, and frequently milk and other advantages, is the average remuneration of young gardeners, a reduction of at least of 6s. will have to be made on going to Kew to balance these. "Libertas" says that the young men are transferred from house to house for their own benefit and to the disadvantage of the plants. To my certain knowledge that is done very irregularly, some young men receiving two or three changes, others only one, and some none at all. In short, this so-called shifting from house to house only occurs as vacancies arise, and as there are over thirty young men such a method is manifestly unfair to many.

As to the science lessons, the excellent intentions, and commendable efforts of the authorities are rendered less useful than would otherwise be the case owing to the time at which the lessons are given. It should be borne in mind that most of these young men are confined to tropical houses, which is very well during the winter months, but quite different in the summer. For instance, every young man is confined to his respective house for five hours at a time—viz., from 1 P.M. till 6 P.M. during the summer months, and mostly, be it remembered, in high temperatures and humid atmospheres. After they have passed through this energy-destroying process they have to attend lessons on botany four or five nights every week. This is not all, for these lectures have to be written out afterwards, and it is difficult for young men to grasp even the rudimentary facts of botany under such circumstances.—SCRUTATOR.

To become a good gardener we may, I think, safely assert that young men must not only study their work during the hours of labour, but also more especially in their leisure hours. In fact more depends upon how these leisure hours are spent than many of us were at one time aware of, or possibly we should have acted very differently. By having rooms or sharing a bothy with others in a garden, young men, besides being able to attend to their duties, also have a much better chance to improve themselves. If they fail in this respect they have only themselves to blame, at any rate they cannot blame employers who have done their best for them. That in some cases the young men are only kept in order by the head gardener or even the foreman must be admitted; but this is no argument against the necessity for bothies, indeed it only serves to convince us of the good policy of providing rooms where they can be so controlled. Lodgings are distasteful to many young gardeners who have previously lived in bothies, and when these lodgings are expensive, not of easy access, and otherwise objectionable, there is all the more reason why more suitable lodgings should be provided, especially seeing that such generally prove advantageous alike to the employer and employés.

I have always been an admirer of Kew Gardens, and rarely miss an

opportunity of spending a few hours among the wonderful collection of plants there cultivated. I have noticed that many of the young men here employed are very intelligent, and all, I presume, apply for the appointments with the motive of availing themselves of the unequalled facilities for becoming well acquainted with the culture of plants. Out of the gardens there is every inducement for them to do as other young men do—viz., spend their time in a manner by no means conducive to the formation of clever serviceable experts such as we expect to be turned out by Royal Kew. I maintain that for these young men to be exposed to the discomforts as well as the dangers attending the class of lodgings many of them inevitably obtain is, to say the least, an oversight on the part of those responsible. It is not the want of means or of a suitable position that can be pleaded as an excuse for not making suitable provision for them, and unless I am much mistaken no great opposition would be met if someone in authority took the matter up. For the good of all concerned I trust this benefactor will soon take the preliminary steps towards obviating the present unsatisfactory state of affairs, and by so doing gain the esteem of many present and past Kewites.—A HEAD GARDENER, *Somerset*.

In answer to your correspondent "Boss," under this head, I venture to say that if he had had experience of the Kew gardeners' lodgings he would not consider the matter of trivial importance, and my opinion is formed after several years' service there; for a new comer to the Gardens is seized upon the moment his wants are made known by persons who receive a trifling recompense from certain lodging-house keepers, some of whose tenements are by no means of an enticing appearance to young men, especially those from the gardens of the nobility in the United Kingdom. I can further add there has been for a number of years a room set apart in the Gardens where the young men can rest assured no attractions of a fancy fair will upset their studies during reading-room hours. There are two resident foremen, who with the young gardener who acts as librarian, are responsible for the behaviour of attendants, but complaints are exceedingly rare. Undoubtedly similar measures could be adopted in a so-called barracks should the authorities give the matter the attention it deserves.—ANOTHER EX-KEWITE.

WINTER-FLOWERING CARNATIONS.

THE time for propagating these has arrived if large and strong plants are to be had for next winter's flowering. I find the cuttings strike very freely when taken off about this time and dibbled into sand in the propagating house. They form roots in about ten days or a fortnight. When rooted the plants are placed into 2½-inch pots in light soil, in which they root quickly, and are then removed into a cooler pit and kept near to the glass. As soon as the plants are large enough the point of each is pinched out, which causes them to break low down, and lays the foundation for sturdy-growing plants. In March they are shifted into 4-inch pots, this time employing loam and cow dung in the proportion of three of the former to one of the latter. We pot rather firmly. In April the plants may be removed to cold frames, and in May and throughout the summer the sashes are kept off the plants. Very good plants may be grown in 6-inch pots. Bone-meal as fine as possible may be added to the compost recommended above. Again pot firmly. The only attention required throughout the summer and autumn is to keep the soil in a moderately moist condition, and put stakes to the advancing flower spikes as they require them. In October the plants are taken into their flowering quarters, and require little forcing until about Christmas, when we find a good heat necessary in order to induce the flowers to open and others to come on.

It is through the winter months that the advantage of firm potting is most seen. With occasional surface dressings of artificial manure the plants continue making roots, which enable them to keep on forming buds and opening flowers in succession for several weeks. The one insect which I find injures the plants is green fly; occasional fumigating keeps it in check.—B.

A NOTE ON CABBAGES.

FOR several years I have allowed the spring-cut Cabbages to start into growth and form several small heads, which came in very useful through the summer and autumn months. This is a plan which is carried out by very many gardeners, and in some respects it is a good one. But it has this serious disadvantage, that the soil is very much exhausted after the Cabbages are removed, and the crops that follow suffer in consequence. It cannot be for the want of manuring in our case, as we employ above the average of cattle manure, and in addition dress with so-called artificial manures. In future I intend to remove the plants as the crop is cut, and plant more frequently.

In order to bring the crop in quickly it is a good plan to give each plant a dressing of a spoonful of guano; sulphate of ammonia is also of great value as a dressing, about half the above quantity being sufficient. Gardeners will find the latter a much better stimulant than nitrate of soda, which passes too quickly out of the soil, while the sulphate acts more slowly, and remains of utility as a plant-food for a much longer period. If the weather is warm in February that is quite early enough to employ any of these manures. Much depends on the variety grown whether we get Cabbages in quickly in spring or not, and the same remark applies to spring plantings to come on after the spring cuttings are past. One of the best I have tried is Nonpareil Improved, a medium-

growing sort, which hearts very quickly, and is also good for succession crops. Mein's No. 1 Cabbage is also very good for northern localities. One of the best from a gardener's point of view is Little Pixie, which, in addition to occupying very little room when growing, turns in very quickly, seeds sown in March coming in for cutting in the end of August and later. A pinch of seed sown in a frame in the beginning of February yields plants that come in about as early as the larger kinds which are sown in autumn. I do not find Coleworts succeed in our northern latitudes. A late Cabbage which comes in about October and November is the Winningstadt. Some sow the seeds of this in autumn, but I sow in early spring. Though not a Cabbage which can be recommended for the dining-room, it is serviceable for the servants' table.—EAST LOTHIAN.

PROTECTING PLANTS FROM FROST.

THE effects of the present mild weather, with the disagreeable accompaniment of heavy rain and dense black fogs, upon vegetation are giving rise to some anxiety in the minds of many gardeners. If, after the spring-like mildness and excessive moisture of the winter up to the present, we are visited with sharp frosts and cold winds, much disaster will result, and that in spite of the greatest care in matters of protection exercised by careful cultivators. With seasonable weather we should at this time of year have the whole of our tender plants in their winter covering. The present mildness, however, forces many plants into activity which if continued must inevitably be followed by fatal consequences, unless we have no cold weather this winter, which is more than we dare hope. Trees and shrubs are bursting their buds, bulbs are pushing through their earthy covering young and tender leaves, and all around us we see a bursting into life which is unseasonable in the middle of January, and is what we should look for only in March or April.

It will be necessary for those who are anxious to prevent any serious consequences to take all possible precautions against the cold winds and frosts. At the same time every care must be taken that we do not assist by too much coddling the work of destruction which cold would bring. It is too frequently the practice to set about the work of matting, strawing, and covering all tender plants as soon as the cold weather may be expected, and although much may be said in favour of such a practice, it is unfortunately too often the case that harm rather than good is done by it. As an instance of this may be mentioned what occurred last year when we were visited with weather of extraordinary mildness during the greater portion of the winter, followed by sharp frosts at the commencement of spring. As usual, the most tender plants were covered sufficiently to prevent severe frosts from injuring them, and this covering was allowed to remain all through the season until all danger of cold weather had passed. The result of this was, that what with the warmth of the earlier portion of the winter and that afforded by the covering, many of the plants were fatally injured, some of the most herbaceous had perished altogether, and the effect of the spring cold upon many others was soon apparent in the shrivelling of the young leaves and the weakness of the flowers. It was plainly evident that in our attempts to keep out the cold we had done much harm, and that if the plants had been left without covering until it was really required little or no harm would have been done. A little wholesome severity is often better for many plants than indiscriminate protection, which too often renders the plants delicate and incapable of bearing the slightest cold. We are, perhaps, a little too apt to afford protection to plants without making any allowance for the capacity of the plants themselves to adapt themselves to circumstances. Protection for plants should not be resorted to unless it appears really necessary. The material used for protecting plants from the effects of cold is too often conducive to ill results. To straw and mat, or cover with leaves or such material as holds water, plants which naturally have the whole of their branches and stems exposed to the influences of the air and light, is analogous to burying them, and as likely to prove injurious to their health as such treatment would be if practised upon animal life. The protection we are compelled to give many outdoor plants is a necessary evil, unavoidable to a great extent in this country. That something should be done to prevent tender plants being injured during severe weather must be admitted, but it should be done with due consideration. When such means of protection as those mentioned are used they should be removed again as soon as the danger has passed, and be replaced and removed again as often as necessary, at least in the case of those plants which would not stand a long covering without injury.—W. K.

BORNEO.

[THE following is the substance of an instructive paper upon the productions and government of Borneo, read before the members of the Horticultural Club, Henrietta Street, Covent Garden, London, on the 8th inst., by Dr. Houghton, who has resided in that island during the past twenty years.]

It is, of course, familiar knowledge that the island of Borneo is situated in the China Sea, about 450 miles east from Singapore, and is therefore a tropical country. It is supposed to be, next to Australia, and probably New Guinea, the largest island in the world, being more than 800 miles in length by about 600 miles in width. The total population of the island is estimated at nearly two millions, comprising a great variety of races and

aboriginal tribes, and consist of Chinese, who migrate there in large numbers; Malays, who are supposed originally to have come from Sumatra; Dyaks, Kyans, Malinowes, Punans, Pakatans, Ukits, and others.

The Chinese constitute the principal trading and labouring part of the population. They have established bazaars in many parts of the Sarawak territory; they purchase produce from the natives in all parts of the country, and do all the export and import business. Some of their merchants are very wealthy, and have lived many years in the country.

The Malays also do some trading, chiefly along the coast and with adjoining islands, but they are mainly occupied with agricultural pursuits, such as the cultivation of Sago, Tapioca, and Rice, and are the most numerous race in the country.

The Dyaks are of two kinds, Land Dyaks and Sea Dyaks.

The Land Dyaks, so called from their living in the interior, are principally engaged in working gutta percha, which they obtain from the trees, which are indigenous and grow in the jungle, and sell to the Chinese merchants. They also do some planting, but mostly Rice for their own consumption, though they sometimes sell the surplus. They are a somewhat feeble race, and are thought to be gradually dying out.

The Sea Dyaks are a finer and stronger race, living on the rivers and by the coast. They also work and sell gutta and plant Rice, but in addition weave cloths for apparel, work in brass, and make for their own wear rings, anklets, and other ornaments, being very fond of decorating their person.

Of the other races inhabiting this interesting country the Kyans come next for notice, and form a marked contrast to the Dyaks. They are more peaceful in their habits, live more in the interior, and construct dwellings which are models of cleanliness and comfort. These dwellings are built of bilian or ironwood, and often of large dimensions, many possessing as many as thirty or forty "doors," a term used to signify a part of a house occupied by a separate family. These, and nearly all dwellings in the country, are built on piles from 6 to 12 feet or more from the ground as a protection against snakes and other vermin, and in olden times from night attacks from hostile tribes. They consist of only one floor with sometimes a loft over.

The Kyans are chiefly engaged in agricultural pursuits, but some of them are clever in brasswork, and others in wood and ivory carving. The women have a curious custom of wearing heavy rings with leaden weights attached in their ears, until the lobe hangs down on to the shoulder, which is considered a mark of great beauty.

The Malinowe race is not very numerous, and they are chiefly occupied in the cultivation of Sago and Rice. They are very peaceable, but have a curious custom of flattening the heads of their newly born children by fixing heavy boards upon them in such a way as to prevent the rounder formation of the cranium which we think more preferable.

Of the other races I have mentioned but little is known, and the only peculiarity calling for notice is that the Ukits, who inhabit a remote part of the country, and are as yet in an uncivilised state, may be said to possess no earthly habitation—that is, they build no houses or other dwellings on the ground, but construct their domiciles on the branches of trees. My brother, the late Alfred Robert Houghton, who lived amongst them as Resident of the district for some time, and did not find them at all a savage race, but rather amiable than otherwise. He endeavoured to teach them to construct buildings more adapted to human wants, but he did not stay among them long enough to make much progress with the work, and I have not heard what has been done in the matter by his successors in the residency.

The climate on the whole is extremely healthy though warm and moist, and Europeans may reside there with comfort and retain their health for many years, as evidenced in my own case, with care and proper precautions suitable to a tropical country. The temperature ranges from 69° to 80°, except in the hottest seasons, and then it seldom exceeds 90°. There are two monsoons—the N.E., which commences in November and lasts till March, and is the wet monsoon; and the S.W., which commences in April and lasts till November, when the weather is usually fine and dry, June and July being the hottest months.

The agricultural products are Sago, Rice, Tapioca, Gutta Percha, Indiarubber, beeswax, edible birds' nests, Gambia, Pepper, &c. An attempt is being made on an extensive scale to grow Cinchona in a locality thought to be suitable, which promises to succeed under the auspices of the Government and the able superintendence of a planter from Ceylon, but the trees are not yet sufficiently grown to yield any product of quinine. They are doing, however, remarkably well; the climate and soil seem to suit them, and there is every prospect of the plantation

becoming the nucleus of an important addition to the already rich produce of the country. Experiments are also being made to grow Cocoa and Tea, but only at present on a small scale, though both are promising well. Liberian Coffee has lately been extensively planted, and is also likely to succeed. The soil and climate seem to be suitable, and when I left Sarawak the trees were growing well and showing much promise. This experiment is watched with much interest, and the cultivation is likely to extend over large areas if it prove a success.

The fruits indigenous to the country or found to grow there well are Mangosteen, Durion, Lancat, Pumillo or Shaddock, Mangoes, Rambutan, W. E. Pines, Oranges, Lemons, Custard Apple, Jackfruit, Breadfruit, Banana, Roakam, Papaya, Kayminton Nut, Gadus or Cachu Nut, Katapong, Melons, Limes, &c. Most of these I have grown in my own plantation to great perfection.

I have also tried and succeeded well with the following vegetables from seeds supplied me from England by Messrs. Sutton and Sons. Vegetable Marrow, Celery, Broad Beans, French Dwarf Beans, Cabbages, but without hearts, Lettuce, Watercress, Peas, Kohl Rabi, Onions, Radish, Endive, Asparagus, Beet, and some others; but the climate does not suit Grapes, Peaches, Plums, Apples, Pears, or the English bush fruits or Strawberries; nor among vegetables do Scarlet Runner Beans, Brussels Sprouts, Scotch Kale, Seakale, Savoys, or Artichokes grow well.

The flowers I have grown are of Roses the Tea sorts, including *Maréchal Niel*, *Gloire de Dijon*, and many others, all of which did well and flowered in great profusion. The soil, however, being sandy, had to be strengthened with burnt earth and cowdung for the better sorts; but there are many beautiful kinds growing almost wild which attain a great size both of flower and tree, and whole hedges may be seen covered with a profusion of flowers scenting the air with their perfume. I have also grown from English seeds or bulbs plants of *Portulaca*, which does splendidly, *Phlox*, *Lobelia*, *Petunia*, *Pelargonium*, *Gladiolus*, *Begonia*, *Gloxinia*, *Eucharis*, *Coleus*, *Bougainvillea*, *Balsam*, &c., besides native flowers innumerable, the names of which it would take too long to enumerate, and others imported from India and elsewhere. The Pitcher plant or Monkey Cup grows in great variety and to a large size, some of the flowers holding as much as a pint. The *Caladium* also grows well, and *Coleus* and *Begonia* are found growing wild on some of the mountains. Ferns I need not say grow in immense variety and to perfection, while Orchids of every kind and hue flourish in abundance, having found there a natural home.

ALTERING THE NAMES OF CHRYSANTHEMUMS.

I AM glad to find that this unjust practice of re-naming Chrysanthemums is being exposed, and I am quite certain many cultivators will hail your correspondent's letter as a very useful one, touching as it does upon a subject which requires ventilation; still it is somewhat surprising that no further correspondence has appeared in your valuable paper upon the matter. I quite agree with Mr. Payne that unless some steps are taken to check this fast-growing evil great disappointment will be caused both to the professional and amateur grower.

It is, for various reasons, most essential that when once a new variety has been named by the raiser it should always be catalogued and sold under that name. For instance, an exhibitor may be disqualified for having two flowers alike on one stand, both of which he has purchased this season at different houses under totally different names; for the one he has to pay 5s., and the other he obtains for 1s. 6d. I have before me several catalogues of the leading dealers in Chrysanthemums, and regret to say there are very few of them that are correct.

It would be a great convenience to all Chrysanthemum growers who, like myself and the members of the Society to which I have the honour to belong, are desirous of having their plants true to name if a complete list could be published of all Chrysanthemums which have been re-named, or had their names altered in any way, and I for one should have very little difficulty in pointing out a very large number that have been treated in this way.

One French firm informs me they have succeeded in raising forty-one new varieties, which will be sent out this season, and I trust that when they reach the English market and appear at the various exhibitions in the autumn we shall find them under the names given them by this French firm. I may say that our Society has resolved to ignore this re-naming, and exhibit our plants and blooms as far as practicable under the names given them by the raisers.—GEO. S. ADDISON, 22, Peckham Grove, S.E., Hon. Sec. *Lambeth Amateur Chrysanthemum Society*.

MR. HARMAN PAYNE's remarks in your issue of the 20th December appear justified by the facts of the case as it is stated, but seem to me to be incomplete, conclusive evidence being needed of the existence of the transactions indicated. Changing the names of plants is unfair to purchasers, and must result in utter confusion and prove inimical to trade. Messrs. Delaux et fils are deprived of their proper and well-earned reputation if the names of their varieties are altered. Are these

alleged "changelings" charged a higher price than the originals? Altering names is not, I fear, restricted to Chrysanthemums alone, but applies particularly to vegetables. In this latter class it would be interesting to know how many aliases some of them have. The trials at Chiswick prove what I have stated; but still the thirst for novelties goes on, and the public palate has to be assuaged with novelties only in name.—V., *Edinburgh*.

Your correspondent, Mr. C. Harman Payne, has taken a wise course in making public a grievance which I am sorry to say is very common at the present time among a certain class of growers—viz., sending out wrongly named Chrysanthemums. Why it should have existed so long I fail to see, but if all who have been victimised were to protest as well as he the practice would soon become a thing of the past. Nothing is more annoying than to grow for a whole season plants that were believed to be true to name, and then to find them inaccurate. I have experienced a little of this annoyance, and can understand the disappointment of others.

A year or two ago, wishing to renew my stock and obtain a few of the newer varieties, I wrote to a grower ordering about fifty varieties, which I did not receive until nearly two months after date of ordering. Of these not ten proved correctly named. Imagine my feelings when the flowering season commenced I saw Mr. Bunn transform itself into Emperor of China, Prince Alfred into Lord Derby, Criterion into—well, I know not what this would have turned into, as I had not the pleasure of seeing it in flower. It seemed an extraordinary variety; it grew for fifteen months without showing buds. The year following, more for curiosity than anything else, I wrote ordering a few more, but with much better results—only half were found to be incorrect.

I cannot see what advantage respectable firms who value their reputation gain by sending out wrongly named varieties, and do not believe they would knowingly send them out incorrectly named. Are continental growers from whom the English growers receive the plants as careful as they should be? Are the plants all they are represented to be? Blame at times is often thrown upon the wrong shoulders. Gardeners themselves might be more careful. I have often seen when the plants are potted singly small pieces of paper act as substitutes for labels, sufficient labels perhaps not being at hand.—C. WARING.

ADVICE TO YOUNG GARDENERS.

THERE is a striking contrast between the communications of your two correspondents, "A Working Gardener" and "H., Notts," on the above subject. "A Working Gardener" ably expresses himself in an excellent article, which deserves the attention of every young gardener; and if your correspondent "H., Notts," instead of writing in corroboration, had exerted himself in the commendable endeavour to finish the work commenced by "A Working Gardener," by pointing out the best way in which a knowledge of the subjects enumerated could be most advantageously acquired, he would have conferred a lasting boon upon the young members of the gardening fraternity.

It is certainly a fact that many of the young men spend their evenings in a very careless, not to say unprofitable, manner, thinking only of the time being.

If the desirability of studying the sciences—chemistry, geology, geometry, vegetable physiology, botany, and physics, as a scientific basis of gardening operations were pointed out in more forcible language than has hitherto been the case, I am of opinion that many more would make an attempt to acquire some knowledge of them than at present even know of their existence or meaning. I do not suppose the average young gardener knows what the various manures are composed of, or in what way they are beneficial to plant life; and is it not as desirable for the gardener to know that as for the physician to know what he is administering to a patient, and in what way it will act upon his system?

Nor yet, perhaps, do they know how plants obtain their food from the soil. That the application of manure is an essential operation is known from custom, but in what form it is assimilated by the plants is not generally known. I guarantee if the question were put to many the answer would be to the effect that it was brought about by an indescribable something, and they would not be able to explain the matter any farther. I consider the reason the sciences, chemistry, &c., are not more studied is because it is not generally understood that they are in any way conducive to the gardener's benefit, or they are looked upon as something entirely beyond the grasp of the ordinary intellect.

It is, as "A Working Gardener" observes, uphill work to pursue such study without the aid of a tutor, especially when the student is only possessed of an elementary education, as is the case with the majority of young men in gardens. But much may be done by application and perseverance, and it behoves any young man to apply himself solely to his trade or profession, be it what it may, making it his only aim if he would earn a name for himself in the world.

"A Working Gardener," in his excellent article, invites the opinion of many able writers when he says, "There are many amongst your correspondents who can better inform us how the above subjects may be most profitably studied and a knowledge of them acquired." I am sorry to observe that the invitation has not yet been responded to in a manner the subject is so well worthy of. I, for one, wish to thank "A Working Gardener" for his article on such a good subject, and I hope it will not be allowed to fall into obscurity again. I would gladly give any information if it lay in my power, but I come seeking advice and assistance instead.—QUERIST.

THE perusal of "A Word to Young Gardeners" in your issue for December 13th gave me great pleasure, and I am sure numbers of young men (myself included) will feel deeply grateful to "A Working Gardener" for his kind words of advice and encouragement. The recital of his experiences when a young man tends to interest and stimulate young men to strive to attain as high a mark as possible in the profession to which they have devoted themselves. No doubt the young men of the present day have many advantages which were denied our predecessors. During the last twenty or thirty years how many improvements have been wrought in the numerous branches of our calling, rendering the duties of a gardener less tedious than formerly. Amongst these may be mentioned the superiority of hot-water pipes over the old flues, the handy means of ventilation by using the simultaneous system as compared with the old method. But as the means have improved so also has the demand increased, and gardeners of the present day have much more to produce than formerly, and in proportion young men have more to learn; so in this age of competition it behoves young men to lose no opportunity of improving themselves if they wish to keep step with the advance of science. This may be done in numerous ways, such as attending evening classes, mutual improvement amongst themselves, studying the weekly and other horticultural literature, of which so much is now to be had treating on the different methods by which plants, fruits, and vegetables may be brought to perfection.

Reading frivolous exciting novels, to the exclusion of all beneficial books or papers, is a serious error into which a great many young men fall. This is a habit, and a most baneful one, which should and can be given up, as I know by experience. I would advise all who are given to such reading to quit it at once, and they will never regret it—at least, this has been my experience. Card-playing is another debasing game which ought to be discountenanced in all respectable circles, but one which I am sorry to say is very prevalent in bothies.

If young gardeners would only follow the advice given to them by such kind and experienced men as "A Working Gardener," how many future troubles and anxieties would be avoided. I trust that "A Working Gardener" may spend a happy new year, and long be spared to advise and encourage the rising generation of gardeners.—CALEDONIAN.

BATEMANNIAS AND COOL TREATMENT.

THE term "cool" as applied to the cultivation of Orchids is somewhat vague, and apt to prove misleading. The cool Orchid house of one grower may, and often does, differ as much as half a dozen or even more degrees as regards temperature from that of another. Some Orchid growers recommend a temperature of 45° to 48° during the winter months, while others prefer one of from 50° to 53° or even higher. It depends greatly on other conditions besides that of heat as to whether the particular treatment known as cool would prove suitable for the cultivation of many Orchids. Many growers are compelled to keep their cool house almost as warm as some would think sufficient for a Cattleya house, or, to employ another frequently used but almost as indefinite a term as cool—the intermediate house. From this it will be seen that many plants would thrive in the cool Orchid house of one grower which in that of another would soon perish. It is by far the best when giving cultural information upon Orchids, or indeed upon any plants, to state the temperature that is considered to be most suitable, and leave the reader to the choice of houses. It may be well to point out that in those cases where large numbers of the most popular of cool Orchids are grown there is no danger in keeping the houses at a uniformly low temperature; but where the cool house contains a mixed collection, and some of the plants are not well understood, it is far safer to keep the temperature at something like 50°. The coolest Orchids will not suffer under such conditions, whereas in the lower temperature many of those requiring a degree or two more heat would soon sicken.

I was led to make these observations by the remarks on Batemannias and their allies, page 555. It is there stated that "cool treatment suits most Batemannias," and "one of the chief reasons for failures is placing the plants in too strong heat, where they seem to make good progress at first but ultimately become enfeebled and collapse." Now the finest plants of the Batemannia, Bollæa, and Pescatorea family I have seen were grown in a warm house, where the summer temperature ranged from 70° to 75°, and in the winter from 55° to 60°. I have grown most of them, and at the present time have a good collection in my care. Last summer we placed the whole of them in an Odontoglossum house along with O. vexillarium and O. Phalanopsis. Here they grew freely. In the winter we have always removed them into an East India house, but this year, wishing to test their hardiness, I left them standing in their summer quarters. The result was that in a short time the leaves turned yellow and the hearts of two of the plants suddenly rotted. We at once removed the whole of them into the East India house, where they have almost recovered. This appears to me conclusive evidence of the injury caused by cool treatment to the Batemannia family.

The late Mr. Spyers, who grew these plants better than I have seen them with other cultivators, has made some excellent observations on their cultivation in his usual practical style, and which are in my opinion the most reliable information we at present possess on the management of these beautiful Orchids. He said "The plants—namely, Bollæas, Batemannias, Warscewiczella, Huntleyas, and Pescatoreas, grow in very shady woods in a country where rain falls more or less every day in the year, save five or six. It is easy to understand what difficult plants these are to get home alive; it is indeed rare in buying a bundle of imported ones to get more than a few live rhizomes. These

rhizomes should be immediately potted in crocks, placed in the East India house, and watered all over every day. Soon or never breaks will show. If they do show still continue the watering, and when roots appear give them a little peat and sphagnum to run in as soon as it is possible to recognise the dead from the living, place the plants in pots half filled with drainage, using peat and sphagnum with a small quantity of half-decayed leaves for compost. This mixture should be used for all future pottings or top-dressings. Established plants should now be placed in the intermediate house. Give them a position where they will be protected from even weak sunshine. All through the summer water copiously overhead every morning and evening, once a week give a good soaking direct to the roots. Towards the end of the year, when the end of the intermediate house night temperature falls below 60°, move the plants into the East India house, water overhead once a day, and at the root often enough to prevent dryness." I saw Mr. Spyer's plants at Burford Lodge in September, 1881, and they were then in splendid health, with leaves on them like flags, and flowers of the greatest beauty. It was here that I learned that the *Batemannias* and their cousins along with *Odontoglossum vexillarium*, *O. Phalænopsis*, and *O. Roezlii* could be grown into large specimens in this country under proper treatment. My experience, along with that of most Orchid growers, is that large plants of the Orchids above mentioned are exceptionally difficult to obtain and keep, which is due to their unfortunate trick of dying behind as fast as they grow in front.—W.

HISTORICAL JOTTINGS ON VEGETABLES.—No. 11. THE BEET.

THERE is some reason for the assertion that the Beet as a culinary vegetable scarcely has at this time the popularity to which its good qualities might lay claim. It is really much in the position of the Parsnip; yet this may not be entirely the fault of the public, though in this luxurious age the wholesome is often rejected for the toothsome. Perhaps the vegetable is insufficiently recommended to notice by growers and vendors. Our common name for it is evidently from the Celtic word *bett*, meaning "red," which affords an indication of the kind of Beet which was best known to our ancestors. The wild or Sea Beet (*Beta maritima*) occurs here and there on the coast of England and Ireland. The leaves have been eaten like Spinach. But most botanists are not of Bentham's opinion that the garden varieties are descended from this stock. There seems great probability that our cultivated Beet is a native of South Europe. Certainly the Greeks knew the Beet full well centuries before the Christian era began, and old authors mention a white and a black kind. Black, says Fée, we may presume was a purple or purplish red—identical, that is, with our red Beet. To the white Beet the appellation of "Sicilian Beet" was given, owing to the profusion with which it grew in that island, supplying the inhabitants during a long period of history with no small amount of the food they consumed. There is, however, a black Beet, and this with the others was figured by Matthioli in 1565, and he describes the three as *Beta alba*, *rubra*, and *nigra*. Some sixty years later naturalists made out nine species. These Linnaeus reduced again to two, besides the wild species—namely, *B. vulgaris* and *B. alba* or *cicla*. It will very likely remain an open question whether all the garden Beets are not variations, due to soil, climate, or culture, from *B. vulgaris*.

Amongst the ancients, so far as we can ascertain, only the leaves of the Beet were eaten, and means taken to induce the plants to form heads, resembling those of the Cabbage. Pliny, who gives some cultural instructions concerning the Beet, mentions the plan of putting a light weight upon the plants when they were colouring to promote the growth of the heads, but we may perhaps be allowed to doubt his story that in the territory of Circeii heads of Beet were produced which were 2 feet across. Some advised sowing the seed in spring and some in autumn. It was generally supposed to be beneficial to the young plants that they should be transplanted, and then well manured with a good supply of water if the weather was dry. Under the empire the Roman gentlemen only condescend to eat Beet when it was cooked up in spice and wine, because they deemed it so insipid by itself. The commoner class of citizens mixed with the leaves boiled lentils or mustard to give them a flavour.

Some have given 1548 as the year in which Beet was first raised by English gardeners, but about that date there is doubt; not much, however, in its being introduced by the Flemings, who brought over many plants, both flowers and vegetables, during the reign of Henry VIII. The author of the "Gardener's Labyrinth," one Thomas Hill, who devoted so much time to the planning of ingenious mazes and variegated mounds, mentions the Beet when writing upon plants in a volume published about 1595. At that period the Beet was evidently neither uncommon nor a favourite plant, for he refers to it in a way implying that those he addressed would have seen or grown it, and he adds that the plant was one

which was useful to poor men. If we were to attempt to fix the locality where Beet was cultivated near London in the days of the Tudors we should indicate the neighbourhood of Hoxton, or the not far distant Hackney. In both these districts many of the citizens had garden plots of different sizes, and grew vegetables for their own use, selling off a surplus occasionally to the City market women. South of London on the Surrey side we read of Tradescant cultivating Beet in moist Lambeth while Cromwell was Protector; Vauxhall and Battersea were also found suitable for it. The white Beet, however, did not reach Britain until late in the seventeenth century. Gerard, the worthy botanist and gardener, expresses himself in words more commendatory of the Beet than did Hill. "Red Beet boiled," says he, "and eaten with vinegar and pepper is a very delicate and excellent salad; but what might be made of the red and beautiful root I refer to the curious and cunning cook, who no doubt when he has had the view thereof, and is assured that it is wholesome, will make therefrom many divers dishes both fair and good." Until he threw out the hint the value of the root appears to have been scarcely thought of.

Evelyn soon after the arrival of the white Beet (which is stated to have been introduced from Portugal) took occasion to praise the leaves, or at least their midribs, which he thought to resemble marrow. To this hour the plant is largely grown in some continental countries in order that these, with their footstalks, may be cooked and eaten like Asparagus heads. Experiment has suggested other uses for the root beside; garnishing salads. Dried and ground they have been added to coffee, or mixed with a proportion of flour they have been made into bread. It has been asserted that the lassies of the north of Scotland use the juice of the Beet to impart a colour to their cheeks, which is cheaper than carmine or rouge; but this may be mere scandal, and most of them are rosy enough to need no such artificial adornments. An intoxicating liquor may also be made from Beet by fermentation.

The discovery that sugar existed in the Beet, more particularly in the white variety, is attributed to the Prussian chemist Margraff, who reported the fact to the Berlin Scientific Society in or about 1747. It was regarded as a matter of curiosity merely for many years, although Arhard, another chemist, tried to awaken interest concerning its possible uses; and he, with others, brought the subject before the Institute of Paris, but that august body, after sundry experiments, decided that there would be nothing gained by the attempt to extract sugar from Beet upon an extensive scale. A change was brought about by one of the features of the Napoleonic policy early in this century, when the Emperor, out of hostility to Britain, resolved to prohibit the importation of sugar from any British settlements, and the necessity arose for obtaining the article on French soil. At Rambouillet the first sugar factory was established; schools were also formed to instruct pupils, and since 1812 there has been a steady production of Beetroot sugar in France. Large manufactories exist in other countries of Europe, and the hint being taken by some of our fellow countrymen a factory was opened at Chelsea in 1837. Of late years special attention has been drawn to what might prove an advantageous industry to us in these times of close competition with foreigners, English-grown Beet having been found to yield 5 per cent. of sugar, which is good in appearance, though its sweetening power is less than that of cane sugar. Alcohol can be obtained from this sugar by the customary process.

The Mangold, now esteemed a valuable food for animals, received its German name, *mangel-wurzel*, which means "root of scarcity," by an error of spelling. It seems to have been first grown in Germany rather more than a century ago, and is probably a hybrid between the white and red Beet. Sir Richard Jebb had seeds of this variety sent him from Metz in 1786, and his distribution of these led the once famous Dr. Lettsom of Camberwell Grove to the writing of a small pamphlet upon the Mangold and its uses. The first crops of importance were raised in the county of Norfolk, near Burnham. By degrees the cultivation of this plant became general, and it has been a matter of competition to see how large a crop could be produced per acre, and what huge individual samples could be got; "mammoth" Mangolds, in fact, have been good rivals to the "big Gooseberry," of our newspapers.—J. R. S. C.

INSECT ENEMIES IN NEW ZEALAND.—The fourteenth annual report of the Botanic Garden Board of New Zealand (1883) contains valuable information as to the ravages of certain scale insects (*Coccidæ*) in the colony. They appear to be principally of two kinds: one is an *Icerya*, nearly related to the Sugarcane pest of Mauritius, &c., the other a *Mytilaspis* allied to the common "Apple scale" (*M. pomorum*). The *Icerya* is called the "Wattle blight," but appears by no means to confine

its ravages to the Wattle trees. According to Mr. Maskell it is the *Mytilaspis* that is the more serious, for it overruns in countless millions all kinds of fruit and other trees (fortunately it appears to be enormously infested and destroyed by a parasite). With regard to remedies, there is a little vagueness in the report, owing apparently to the confusion of the two insects. The first portion speaks only of the *Icerya*, and states that Mr. Engle of Nelson had completely destroyed it by the application of kerosene and fish oil. Subsequently Mr. Maskell, dealing with the two species, says that a mixture of kerosene and linseed oil (one-third or one-fourth of the former) as recommended by Mr. Comstock in America, had been perfectly successful so far as regards the *Mytilaspis*, which he does not regard as serious in its probable effect upon Wattles (*Acacia*), but very serious with respect to fruit and other trees. On the other hand, he considers all remedies useless against the *Icerya* of the Wattle other than the radical one of cutting down and destroying the affected trees. No indication is given, however, of the use of a force-pump in distributing the kerosene; if this were used, the remedial agent might be distributed to a greater height than would be possible by mere hand application, and, moreover, it might be made to penetrate dense hedges, &c., the interior of which it would be impossible to drench by hand labour. The same report speaks very hopefully of the ultimate success of attempts to cultivate Hops in the province of Wellington; in Nelson success has been already secured. The great drawback is the expense of providing the necessary poles, and much stress is laid upon the necessity for cultivating Oak, Ash, Birch, and species of *Eucalyptus* for that purpose. Of the indigenous poles, those of *Myrsine Urviliei* are said to be the most durable.—(*Nature*.)

VINES FAILING.

THE Vines which I replanted from those which had been hard frozen the previous winter (page 537, last vol.) began to move in July, new leaves formed, the leading buds plumped up fairly well, and there were some patches of a bluish metallic lustre in a few of the old jaundiced leaves. These patches were mostly on the strong ribs of the leaves, spreading a little on each side, but this is far from general amongst them yet. Roots, too, were moving; I examined a few, like the white end of a quill, only not so strong, but I did not detect any hairs on them. The two Vines which I put in by way of experiment had then scarcely started, except appearing a little more plumped. The new Vines were very healthy, the best about 5 feet long and the smallest 3 feet. These had been struck from eyes in the early spring of the same year, and had, as I suppose, received their last potting for the season; the roots were coming to the sides of the pots. Of course we could not spread out the roots in this case, so the balls were carefully placed in position with the addition of a little leaf soil and old mortar broken up as in the other case, a good soaking of tepid water given to each, and they were then kept in as warm and moist an atmosphere as could be given with safety to the Vines. With a hot July sun it was necessary to open the houses freely, and it was not therefore an easy matter to maintain a moist atmosphere in glass structures. By the first week in August all were growing fast, the foliage of a good dark colour, but the leaves first formed on the old replanted Vines were small and not so deeply coloured as the newer ones, less moisture was given and as much air night and day as possible, being careful to keep a good temperature. This state of things was continued until the first week in October, at which time several of the Vines had reached the top of the houses, but the wood was very green and soft. They were cut back freely, with the expectation of having one or two bunches from each Vine in the following season. The two Vines put in by way of experiment had not made much progress, and were cut back within two eyes of the border; also two of the others were cut lower down than the rest.

After giving the house a thorough clearing I examined the border carefully. This, as I expected, was dry, as my object had been to take care of the fibre, and had therefore only given sufficient water to keep the Vines healthy. Early in January we began to start the Vines. We had on some of the best Vines four bunches, three had only one bunch each, all the rest two or three each only. The two Vines which made very pithy wood did not show fruit, but it was difficult to restrain the growth, and with a dryish border as before the wood was well ripened by the middle of September; also the two which made pithy wood much improved, and the two planted by way of experiment had made very good canes. Pruning was then performed, following up with the same thorough cleaning as in the previous winter, only at an earlier date. In the first week of December we started the early house, but as we have insufficient pipes for winter work it was the first week in June before we commenced cutting Hamburgs. The Vines all ripened a most satisfactory crop, both bunch and berry being exceedingly fine. The two Vines planted by way of experiment have given one seven and the other five bunches of well-finished fruit; they chanced to be the Canon Hall Muscat. The soil of the borders is not much occupied by the roots, as I never thought of keeping them for permanent Vines. I have now another set of Vines between those first planted, which will be easy to keep to the surface now the border is settled, and we shall cut away the first-planted Vines as the new ones take their places.—R. LIVSEY, *Clairville, Birkdale, Southport*.

THE COCOA PLUM.—Those persons who visit Florida can, if they are interested in such matters, make the acquaintance of a number of wild fruits. Among these is the Cocoa Plum, of which some speak in high praise. The Cocoa Plum is *Chrysobalanus Icaco* (the generic name

meaning "golden acorn"); the genus is now placed in a sub-order of the Rose family, and differs from *Prunus*, the common Plum, in points only of interest to the botanist. It is a shrub from 6 feet to 12 feet high, producing white flowers. It is very common in all of the West India islands, and in Florida it is confined to the southern portion of the State. The fruit, in size and general appearance, is much like a common Plum, but is remarkably variable in colour, some being white, others yellow, while it is not rare to find specimens with red or purple fruit. The pulp is sweet, and, though a little austere at first, most persons become very fond of the fruit. In Jamaica and others of the West Indies, a conserve prepared from the pulp is an important article of domestic trade. The kernel yields an oil on expression. The leaves and roots are astringent and employed as local remedies.—(*American Agriculturist*.)



KITCHEN GARDEN.

Early Peas.—Where these are valued, and they are everywhere, their cultivation must now be commenced in earnest. Autumn-sown crops may be good in some places, and failure may be the result in others, but these must not be depended on altogether, as we have often had Peas appear strong, healthy, and well up in January, and yet they were very far from this after the February frosts and March winds were over, and those sown now or about this time came in before them. Young plants from autumn-sown seed should be as much exposed to air and sun as possible, and only give shelter from cutting winds. A good ridge of soil drawn up on each side is one of the best protectors they can have in spring, and little twigs are better to put on each side than tall bare stakes, to which the tendrils cannot readily cling.

There are many ways of raising young Peas in spring, but we only practise two of what we have proved to be the best modes. They are both simple. One is to sow the seed in the open ground, the other in pots. Round Pea seed such as William I. is very hardy. It will germinate now as well as in November or March, and a number of rows should be sown in the most sheltered corner available. Light rich soil is the best, and a quantity of sand put in with the seed is excellent for inducing quick and sure germination. If the seed be sown now the plants in ordinary winter weather would be 2 inches high a month hence, and will be sturdy in growth.

In raising Peas under glass there is no better way than sowing the seeds in 3-inch pots. Each pot should have a few leaves put in the bottom, then half fill with soil, putting about a dozen or fifteen seeds on this, and then fill with more soil. Two or three hundred pots filled in this way will give plants to make several rows, especially if each potful is turned out without breaking the ball and planted 4 inches or so apart. This is how we always treat them. As soon as the seeds are sown the pots are placed in a house, pit, or frame where the temperature is from 55° to 65°, and their germination soon takes place. As soon as the young leaves are visible the pots are kept near the glass, and air is admitted freely on all favourable occasions. As growth advances more ventilation is given, and by the time the Peas are 3 or 4 inches high they will have been transferred to a cold frame where they are thoroughly hardened, and then planted in the open ground in about one month from the time of sowing. In backward localities other batches may be sown in the same way to make two or three successional plantations before the end of March, when their culture in the open becomes an easy matter.

Kidney Beans.—These if sown like the Peas in small pots and grown on in 5° or 10° more heat will make rapid progress now. Osborn's Forcing is the best variety to sow under glass. Three or four dozen pots will form a good batch, and if this number are filled weekly until the end of March Beans may be gathered constantly from March onwards. Light rich soil suits them best, and as soon as the plants are 4 inches high they should be transferred to 7, 8, or 9-inch pots. Abundance of light, a genial heat, and plenty of water when growing fast will always bring Kidney Beans forward satisfactorily during the whole of the spring months.

Broad Beans.—Early Mazagan and Seville Longpod varieties should be sown at once. Stiff well-manured soil suits this crop. At present large quantities should not be sown, but only a few rows in an early position for a first crop. Our early Broad Beans are mostly grown between our Strawberry rows. As the ground is good and well exposed here, when the Beans are planted 1 foot or more apart they do not interfere with anything, but bear heavily.

Lettuce.—Early Paris Market and Wheeler's Tom Thumb should be sown now. At this time we only fill some of our cutting boxes of seed, which give 400 or 500 plants, and these make a good batch to begin the season with. Any kind of light soil does for starting the plants, and very little heat suffices to cause germination and make the plants grow; in fact, excepting during the time of frost any ordinary frame with a light over it is a suitable place in which to bring forward the young plants until they are large enough to handle, when they may be transplanted in boxes, frames, or sheltered places about the bottoms of hedges and walls.

Cauliflowers.—Some of the extra early sorts now offered by many seedsmen should be sown in the same manner as we have advised for the

Lettuces. Cauliflowers will bear a little more heat than these when young, but it is quite a mistake to employ great heat for any of them, as it only draws them up weakly. A pinch of Veitch's Autumn Giant variety and Webb's Mammoth, which is a splendid main crop variety, may also be sown to form a succession to the first. Cauliflower plants in frames should have the lights drawn off them whenever the weather is favourable, as dwarfness and hardiness are very desirable characters for them to possess in spring.

Carrots.—Sow Carters' Early Scarlet Marrow in frames. Light hot-beds will assist and forward them greatly, but where materials to form these are wanting put the frames on the ground and sow the seed within. Plenty of sand, leaf soil or half-decayed manure is useful to produce clean tender young Carrots.

Frame Potatoes.—These should now be planted largely, as quantities of young tubers will be much valued by Easter. Carter's First Crop and Sharpe's Victoria are two of the very best for planting at present.

Forcing Vegetables.—Continue to pot successional batches of Asparagus, Seakale, and Rhubarb in to force. They may all be brought forward easily now with less heat than two months ago, and the produce now is finer in quantity and quality. The floors of early vineries and under the stages of forcing pits may often be utilised for forcing at this time, and various kinds of salad plants, especially Mustard and Cress, may be grown in large quantities or inside Vine borders. Examine stored roots, and spread out early seed Potatoes that they may have plenty of light and air to make the young growths robust.

FRUIT FORCING.

PEACH HOUSES.—*Earliest Forced House.*—The trees in this structure being in full blossom impregnation should be attended to carefully. It is necessary that the pollen be ripe, and it is also essential that it be dry. The night temperature must be kept at 50°, or a little higher if the weather be mild, and allow a fall to 45° in severe weather. The day temperature may be 55° artificially, 60° to 65° from sun; above 55° commence ventilating. Leave the ventilators open a little at night, as nothing is so injurious to Peach blossoms as a close atmosphere. Damp the borders and floors occasionally. Disbudding should be deferred somewhat later in early forced trees than those coming on at a later date, yet it should be attended to as soon as the fruit has fairly begun swelling, and it should be done gradually. Leave a growth at the base of the present bearing wood to supplant it next season, and another on a level with or above the fruit to attract the sap to it, stopping it if not wanted for extension when a few leaves have been made. In young trees seek to secure main branches at 18 inches distance, and shoots along them for bearing at a similar distance. Whenever water is necessary, give it at the same temperature as the house.

House Started at the New Year.—The buds are swelling fast, and syringing must cease when the flowers expand, still maintaining a good moisture in the house by damping the floors and borders in the morning and early afternoon on fine days. See that the borders are thoroughly watered. Keep the night temperature 40° to 45°, day 50° by artificial means, ventilating from 50°, and allow an advance of a few degrees from sun heat, or 5° to 10° with free ventilation. If the blossoms are very crowded on the wood, rub off those at the under side or at the back of the trellis by drawing the hand the reverse way of the growth; this will strengthen those remaining considerably.

Succession Houses.—Whatever remains to be done in pruning, dressing the trees, and securing them to the trellis must be attended to without further delay, as the blossoms are swelling and will be in danger of dislocation. Ventilate fully, so as to retard the blossoms as much as possible.

Pines.—To insure a good supply of fruit in what is known as the London season give every encouragement to the Queen plants, and at this season, when the bulk of the plants are about starting, keep them well supplied with heat and moisture. The temperature should be maintained at 70° at night when the air is mild outdoors, and 5° less when the weather is cold; 70° to 75° by day, and 80° to 90° under sun heat. Close the house for the day at 85°, damp the plants lightly overhead about twice a week. Fruiting plants require similar treatment.

Succession Plants.—Keep the temperature at 60° at night and 65° to 70° in the daytime, and 80° from sun heat. As the time is approaching when potting must be attended to, see that provision is made of soil and other requisites.

Cucumbers.—The Cucumber house must have a night temperature of 65° to 70°, being guided as to the degree by the weather—75° by day and 85° to 90° with sun heat. Afford air on all mild occasions, and close early in the afternoon between one and two o'clock, or earlier if necessary, as sun heat is worth far more than fire, and sprinkle the house at the same time with tepid water. Examine the plants frequently for the removal of young fruits not required for succession, doing this shortly after setting. All male flowers should be removed, or only a few retained for fertilisation, so that when the successions have set they can be removed. A good bottom heat is of importance to insure a good supply of fruit, keeping it at 80° to 90°. Give thorough supplies of tepid liquid manure, but only when required. If the plants are weakly apply water only until they begin growing, and then encourage surface roots by top-dressing. Keep the seedling plants intended for the early spring supply of fruit well up to the light, top-dressing as they need it, or transferring to larger pots, placing a small stick to each when they need support.

PLANT HOUSES.

Soils.—These are of the greatest importance in the cultivation of plants, and it is necessary that they be in a proper state for use

when required. This can only be accomplished by keeping a good supply under cover during the winter and spring months. A large quantity will, in a very short time, be needed for potting, and everything should be done to forward that work rapidly. Loam and leaf soil, if left outside at this season until wanted, will be found in a very unfit state for potting purposes. A good supply of the former should not only be stacked inside, but if fibry broken up ready for use, removing all the worms. Cow and sheep manures, if properly prepared, are the best that can be employed for many plants. If this has been outside place it in some position where it can be gradually dried, until it can with ease be rubbed through a fine sieve. When it is in this condition it may be stored in any cool dry shed. Peat should also be broken up and all the soil shaken from amongst the fibre, the former for Orchids, and the latter will be invaluable for small Ferns and for filling pots in which cuttings that require peat will soon need to be inserted. A good stock of sand should be in readiness, with hones, quarter-inch, and meal, as well as charcoal, which should be broken in various sizes ready for use. Some coarse moss should also be in readiness for placing over the drainage; the refuse of the sphagnum required for Orchids, which must be picked in readiness, will be found useful for this purpose. In sorting this discard all the ends that have been nearest the ground and retain only that which is alive. The best heads should be selected for top-dressing, and placed in pans and watered freely until required for use. All empty pots must be washed; in fact, this should be done from day to day as they become empty, and never allowed to accumulate. The crocks to be used for drainage should also be thoroughly washed, then broken and kept in different sizes. This is readily accomplished by passing them through different sieves.

Cleaning Houses.—Before the season for potting arrives this work should be pushed forward. Houses that were washed in autumn should be done again. No plants should be repotted if they are infested with insects until they are thoroughly cleaned. If this work and the cleaning of houses are delayed until the potting is done, the plants are often seriously checked while the operation is going on, instead of receiving every encouragement to make luxuriant growth. The woodwork and glass should be thoroughly washed with soft soap and hot water, and if mealy bug has infested the house add one pint of paraffin to every four gallons of water used for this purpose, or paint the house with pure paraffin. The walls should be limewashed with hot lime, and if necessary add paraffin to this also. The pipes and staging, if ironwork, should be painted. Lamp black and boiled oil is very suitable for this purpose, but should be mixed very thin. The gravel or other material upon which the plants stand should also be washed or replaced with fresh. The stonework and paths, if flags, can be thoroughly cleaned by the application of a little chloride of lime.

Begonias.—Plants of *B. manicata* and *B. hydrocotylifolia* that have been up to the present time in a night temperature of about 55° should be placed in one 10° higher. Select those that have their flower stems most forward, for by the time they can be had in flower they will be wanted both in the stove and in the conservatory. In the latter place they are most useful, and last in bloom nearly twice the length of time that they will do in a higher temperature. These are two of the finest Begonias that can be grown for conservatory decoration. When used liberally amongst other plants they have a very light and pleasing appearance, and when in association with Epacris, and with a variety of dwarf flowering plants amongst them, it would be difficult to realise anything more striking or beautiful. After bringing them forward in the temperature indicated gradually harden them again to the conditions of a house 10° lower, and allow them to fully develop their flowers in the conservatory. By this means more highly coloured flowers are obtained, and they last longer than if fully developed in strong heat; and there is no fear of the flowers falling through being checked, which often is the case if removed to a temperature 10° or 15° lower all at once.

Cypripedium venustum.—When the old but useful *C. insigne* is past its best, as is the case here this season, the plants flowering a little earlier than usual, the above useful variety comes in and fills its place well. This variety has fine dark foliage, which, independent of its flowers, is very effective in the conservatory. The flowers individually are not so noble and striking as those of *C. insigne*, but good pans are very effective at the present time. It is very free flowering, and can be grown well under the same conditions as *C. insigne*; but we prefer to give it stove treatment, and keep the plants in a temperature of 60° during the winter, as by this means the plants will produce their flowers at a time when they are most wanted. If they are likely to come into flower too early the plants are retarded in a cooler place. They are never allowed to suffer from an insufficient supply of water at their roots while in the conservatory, and the lower temperature gives to them a short rest, by which they are much benefited.

THE FLOWER GARDEN AND PLEASURE GROUNDS.

Levelling Turf.—Where much work in the shape of levelling unequal lawns or the formation of tennis or cricket grounds is to be done, every advantage should be taken of dry mild weather, as it cannot be properly done during frosty weather. Novices in levelling are advised, where the ground is not particularly uneven, to first line and cut out the turf in strips about 10 inches wide and 1 yard lengths, these being thinly cut with a paring iron, rolled and stacked near where it will be again required. Then a number of pegs may be disposed over the ground about 4 feet apart each way, the first peg being fixed at the required height of the ground to be levelled, and from this peg the others can be adjusted, either with the help of a straight edge and spirit level, or with

three wooden sighting T pieces. The latter may be made with flat strips of deal, and ours are 3 feet in length and the cross pieces 15 inches. The tops of all the pegs will be level when the upper surface of the T pieces, if these are rested on them, are found to be in a line. It will then be a simple matter to either take away the soil or to add more where necessary, so as to bring all to the level of the pegs. It cannot well be made too firm; in fact, it must be rammed heavily or it will sink unequally. If the position is naturally wet, it ought to be drained previous to levelling, and heavy retentive soil should have a liberal quantity of ashes mixed with it, this tending to solidify the ground and better fit it for use during showery weather. After the pegs are drawn out a little fine good soil may be levelled over the surface, this giving the turf a good start. The latter should be laid closely and be heavily beaten down. If turf is scarce suitable mixtures of grass seeds may well be sown, but not till April, or much of it will be lost. We repeat that, to avoid subsequent unpleasantness or vexation, the greatest care must be taken to make a new ground quite solid, and great depths of fresh soil should be rammed according as the layers are added.

Hotbed for Propagating.—The seeds of several kinds of plants, notably tuberous-rooted Begonias, Lobelias, Grevillea robusta, Solanums and Cannas, Centaureas, Chamæpeuce, and Acacia lophantha, are best sown early, and they germinate the most readily when the pans and pots are plunged in a brisk and moist bottom heat. Tanners' bark is perhaps the most free of insect pests, but this heating material is not generally obtainable, and is only suitable for filling pits in forcing houses. Leaves give a good heat for a time, but are frequently full of troublesome white slugs, while stable manure alone is apt to heat too violently. If leaves and stable manure are mixed together in a large heap and turned in the course of about ten days, then allowed to ferment for yet another week, much of the rankness will have evaporated, and the slugs and their eggs probably destroyed. When with these materials a hotbed for a frame is made it ought to face the south, and be fully 4 feet high at the back and 3 feet high in front, and be beaten firm with the back of the fork. Six inches depth of cocoa-nut fibre refuse disposed over the surface of the bed, whether in a frame or forcing pit, is admirable for plunging in, and slugs do not travel over it freely.

THE BEE-KEEPER.

HOW I STARTED MY LIGURIAN STOCK.

AT the commencement of the past season I had made up my mind to try to place a Ligurian queen at the head of one of my hives. I had a vivid recollection of previous experiments when assisted by a far abler manipulator than myself. Then it was only on the third attempt that her Italian majesty was received, and it could not be said that afterwards the result was a success; on the contrary, as regarded Ligurians it ended in failure. Was this attempt to be any more successful? I selected a strong hive for the experiment, ordered my Ligurian, and caught and caged the English representative of royalty. In catching the latter she fell on the ground. I picked her up carefully; and used as I am to handling insects gently, I cannot believe that she was in any way injured. The queen cage was placed between two of the bars, and I awaited anxiously the arrival of Italian royalty. At the end of twenty-four hours I lifted the cage, and was astonished to see that the queen did not crawl up the cage. Waiting patiently for a few minutes without any signs of life, I pulled out the cage and found her majesty dead at the bottom. This was a blow to my hopes. I reasoned that if the bees would not care for their own queen when caged they would not be likely to notice in a proper spirit a stranger however grand her pedigree might be. In a day or two her majesty arrived, but on opening the box there were few signs of life—most of the workers dead, the rest dying; not one equal to flying, and the queen only moving slightly. I carried her to the fire, warmed her, tried to give her some honey, but after an anxious half-hour death put an end to my hopes. What was now to be done? The ordering another queen and the obtaining her took time, and meanwhile my stock to which I intended to introduce her Italian majesty had not been idle. Many queen cells were being built and completed, and seeing the bees were busily occupied with them, I decided to leave them to themselves and try another idea, which I hoped would insure me my Ligurian in safety.

Fortunately for my experiment the weather was hot. Taking then a large standard hive into a greenhouse I closed up the outlet, put in two or three bars of comb, and then obtained from one of my stocks a bar crammed with sealed brood. In order to further keep up the heat of the hive I kept a lamp under the floor board, a plate of tin preventing the heat being too great. Having then carefully put on the quilt over the bars, I placed the box containing the queen in the back part of the hive, opening it, but covering quilt and body of the hive with some netting, through which I could see what was going on. When thus at liberty her Italian majesty did not appear at all impressed with the responsibilities of her position, but flitted

about the hive, running over the combs, but rapidly leaving them, and as very few workers were sent with her I began to fear my experiment would by no means turn out a success. The portion of the hive she appeared most to enjoy was the portion on either side where there is a groove so that the finger and thumb can get down under the shoulder of the bar. Every time I peeped at her there she was with two or three attendants, and though blown at and made to quit her quarters she returned again. When not thus watching her the whole of the body of the hive was covered over by a thick horse rug. As the afternoon wore on without her appearing to take any greater notice of the combs my hopes went down to zero. Not so, however, the hive; thanks to the lamp being kept up under the floor board it was a comfortable warmth, and when as dusk advanced I took a last peep I was delighted to miss her majesty. On gently moving the quilt I saw a small bunch of bees on the brood comb, and covering all up and fastening in the dummy, I trimmed my lamp and hoped.

The hive was kept in the greenhouse for a couple of days, the entrance closed, and the warmth kept up night and day. Two days later I placed the hive outside and opened the entrance; they soon began to work; a fair lot of young black bees had hatched. A few days later I opened the hive, the queen was well and lively, laying abundantly; but many of the sealed brood had failed to hatch out, doubtless chilled. This comb, after brushing off the bees, I removed altogether for the melting pot; in its place I inserted another bar with sealed brood, these all hatched out, and as the Ligurians hatched the hive became fairly strong. This queen has proved a good breeder and the bees themselves most tractable. Later in the autumn the occupants of a condemned hive were added to them, and I trust next year they may increase rapidly and increase largely my stock of Ligurians. Thus far, then, my rather novel plan of starting a stock has been successful.—Y. B. A. Z.

SWARMING VERSUS NON-SWARMING.

THE above has occupied my attention for a number of years, and as yet my opinions are not at all settled on the point. Some writers tell us that it gives them little or no trouble to prevent swarming, and consequently obtain large harvests of honey. Others equally as eminent in bee-keeping have told us in their writings that they have experienced considerable difficulty in keeping bees on the non-swarming system. Mr. William Raitt has discussed the subject in these pages very ably, and has said that, taking all things into consideration, he believes in a moderate increase of stocks, which would mean about one swarm off each stock. For my part I think this reasonable and practicable, and would be a really good plan where a very long season could be had, to finish up with the Heather; but here (Co. Down) we have a very short season, as the glut is only from about the middle of June till the middle of July. I say "glut," as the bees get honey here from the time the Crocuses appear until frost sets in, but not in sufficient quantities to enable them to store much, it being all consumed in raising brood.

Swarms here are generally late, especially in bar-frame hives that have been supered as soon as the colony became crowded in the brood chamber; but even in hives that have not been supered it is generally well on in June before they would swarm. With the Clover so near I consider it a misfortune to have to make two swarms of my strong one, and to prevent it I put on a tray of sections, and all goes on well for a few days; but when the sections are nearly built out and well crammed with bees, off goes the swarm and not a bee is left in the sections. I decide to put them back, so the tray is removed and each frame, all the queen cells are cut away, the frames are re-arranged, and the tray of sections placed on the top. The swarm is then returned to its old home, but in a few days the bees depart again; and since the last time they swarmed they were very idle, comparatively speaking, for I find they never work so well after they swarm and put back again—they "sulk," as it were.

My objections to the swarming system in the north of Ireland, and, indeed, in very many parts of the United Kingdom where the honey glut is of short duration, are that swarms can only be obtained late or on the eve of the glut, and when obtained are not able in so short a time to fill the body box and enter supers in time to fill them. A mistake one of my queens made last season suggested a thought to me I will give to your readers for full discussion, and I believe this would be a good time of the year to have this discussed, as we could all start with our minds made up what we were going to do with our hives this summer. I, for one, shall be most thankful for the opinions of others on this most important point in the management of bees. The above-mentioned queen entered the wrong box when attempting to return to her own hive after swarming, and was killed. I gave to her stock hive a virgin queen I had in reserve and all the swarm hatched again. This, of course, put an end to swarming in this hive. Now, it struck me that if we could not prevent swarming, and our bees would swarm in spite of us, to secure the swarm, catch the queen and keep her from the bees, cut out all the queen cells but one, and then return the swarm. Having lost the old queen, and having the full stock of bees with a virgin queen, they would work with at least their usual vigour, and swarming would very likely be stopped. What do others say?—COMBER, Co. Down.

TRADE CATALOGUES RECEIVED.

J. Cheal & Sons, Lowfield Nurseries, Crawley, Sussex.—*Catalogue of Vegetable and Flower Seeds.*

Kelway & Son, Langport, Somerset.—*Manual for 1884.*

Harrison & Sons, Leicester.—*General Seed Catalogue.*

Thomas Laxton, Bedford.—*Novelties in Seeds for 1884.*

Charles Turner, Slough.—*Catalogue of Vegetable and Flower Seeds.*

W. Cutbush & Son, Highgate and Barnet.—*Catalogue of Flower and Vegetable Seeds.*

Ormiston & Renwick, Melrose.—*Catalogue of Vegetable and Flower Seeds.*

James & Robert Thynne, 60, Buchanan Street, Glasgow.—*Garden Seeds, 1884.*

Edmund Philip Dixon, Hull.—*Catalogue of Vegetable and Flower Seeds.*

Kent & Brydon, Darlington.—*Seed Guide, 1884.*

William Paul & Son, Waltham Cross.—*Catalogue of Flower and Vegetable Seeds.*

William Bull, 536, King's Road, Chelsea.—*Catalogue of Flower and Vegetable Seeds, 1884.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Vegetable and Flower Seeds for 1884.*

Daniels Bros., Norwich.—*Amateur Gardener for 1884 (with Coloured Plates).*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (Eldred B.).—Buchan's "Introductory Text Book of Meteorology," published by W. Blackwood & Sons, price 4s. 6d., will give you full particulars on the subject of barometers. (J. E.).—Shaw's "London Market Gardens," published at 37, Southampton Street, price about 3s. or 4s., is the best we know on the subject. (James Wood).—There is no large work corresponding to the volume you name. Our "Garden Manual," price 1s. 6d. post free, gives sound and concise information on the culture of hardy fruits and Vines under glass.

Propagating Gynura aurantiaca (F. C.).—This plant is readily increased by cuttings of the shoots inserted in sandy soil and treated like Coleuses. It requires a temperature of about 60°, and the plants should be grown in the stove or intermediate house during winter. In spring and summer they may be treated like other bedding plants, gradually hardened off, and placed out in beds as a margin. The old plants may be lifted in the autumn and potted.

Culture of the Edelweiss (E. T. H.).—The seeds may be sown in sandy soil in spring, either in a sheltered position outside or in pans in a cool frame or house. The plants will require a rather rich, but not rank, and moderately moist soil, but the position must be thoroughly drained, or failure will be the inevitable result. On a rockery it is seen to best advantage, and when thriving it has a very pretty appearance. The plants can be divided each year if desired.

Apple Trees Cankered (J. Hirm).—The example sent is seriously cankered; and as it appears that many trees are similarly affected, we have no hesitation in attributing the cause mainly to the severity of the winters of two or three years ago, notably during the winter of 1880-1881, and the previous immature state of the wood. The subject will, perhaps, be further alluded to.

Calceolarias (A. S.).—Every gardener is liable to accidents, and few escape them in some form or other. You have, however, no cause for alarm that you will have "no Calceolarias worth looking at," provided you grow the small plants, now 3 or 4 inches in diameter, well, allowing them to receive no check whatever either from neglect in watering or too dry an atmosphere, attacks of insects or excessive fumigation. They can be placed on damp ashes in a pit, from which frost can be excluded; and with good and generous culture you ought to have handsome plants by the end of May.

Dressing Vine Borders (A Lady).—The benefit derived from dressing the borders with guano and other fertilisers depends far more on the state of the roots of the Vines than on the manurial value of the dressing. Many borders, especially where the Vines are old, contain practically no feeding roots, these having extended far beyond the borders, even if these are inside the house. In such a case the best course to pursue is to remove the soil from the roots, cut notches in these at intervals of 2 or 3 feet by first cutting straight down almost to the pith, then slanting upwards to the stem of the Vine, covering these with a gritty mixture of loam, leaf soil, and wood ashes, over this placing 4 inches of good loam, and then a surfacing of rich manure. The border being kept moist fresh roots will soon be plentiful; then, and not till then, fertilisers can be applied with

great advantage. Assuming that your Vine border contains abundance of small fibrous roots near the surface, and the Vines need more support than the soil affords, you may spread the manure on the surface at the rate of 2 ozs. per square yard about the flowering period, and again after the Grapes are freely swelling after having been thinned, on each occasion watering heavily to wash in the virtues of the dressing. Just as colouring commences a further dressing may be given if needed.

Stopping Tomatoes (Idem).—Usually when Tomatoes are well grown under favourable conditions flower trusses issue from the main stem, and if these are fertilised and fruit follows, the side shoots that are produced on the same stem should be rubbed off entirely, not pinched to one joint; but if flower trusses are not produced, then the plant should be topped, and the laterals that follow will be almost certain to produce them; one of these may be stopped close to the truss and the other taken up as a leader. In all probability this will produce flower trusses at every joint, and if the pollen is dry the fruit will set, the side growths may then be taken off as before and the stem will only be clothed with the large main leaves and fruit. Rubbing the hand lightly over the trusses when they are quite dry about midday, or shaking them, will aid in distributing the pollen and the setting of the fruit. One stem trained up each side of the pillar will suffice; but if your Tomatoes are under the shade of Vines it is probable you will have to adopt the stopping method occasionally, as the main stem will not be short-jointed, nor produce sufficient trusses for developing a satisfactory crop of fruit. We shall be very glad to aid you at any time in rendering your garden enjoyable. We do not think the variety General Garfield will afford you the utmost satisfaction; it is large but very coarse.

The Mangosteen (Under Gardener).—You are quite right, the Mangosteen is considered the richest and most wholesome food in the world, and is produced by *Garcinia mangostana*. The tree is about 20 feet high, with flowers like those of a single Rose, and leaves 7 or 8 inches long, of a shining green colour above, and olive-green beneath. The fruit is of the size and shape of an ordinary middle-sized Orange, green at first, but as it ripens becoming of a dark brown colour, with yellow or grey spots on its surface. The rind is about a quarter of an inch thick, somewhat like that of the Pomegranate, but more succulent; of a rose colour inside, and with a purple juice and an astringent taste. The pulp is divided into segments like that of the Orange, but unequal in size, and not adhering to each other. The flesh is of a most delicious flavour, resembling a mixture of Grapes and Strawberries, and abounding in juice, which has a fine admixture of the sweet and the acid. "When eaten," says Thunberg, "the rind is generally pared off all round, and the pulp, which is white, soft, sweet, and inexpressibly delicious, is put whole into the mouth, in which it melts like whipped cream. It has a most pleasing mixture of acid, with a small degree of sweetness in it, which does not incommode the stomach, neither is one easily satiated with it." Each segment of the fruit contains a seed like an Almond kernel. Any quantity of the fruit may be eaten without inconvenience, and may be given without scruple to the sick, who, when they have no relish for any other food, eat this with great delight; but should they refuse it, their recovery is no longer expected. Dr. Solander, when in the last stage of a putrid fever at Batavia, found himself insensibly recovering by sucking this delicious and refreshing fruit. The dried bark is used with success in dysentery and tencismus, and an infusion of it is esteemed a good gargle for a sore mouth or ulcers in the throat. The Chinese dyers use the bark as a mordant to fix a black colour. The Mangosteen is a native of the Molucca Islands, and is cultivated in Java and several other islands of the Eastern Archipelago.

The Best Grapes for January (L. L. B.).—Opinions differ, as you appear to have ascertained, as to the two best Grapes, one black and one white, for high-class dessert purposes in January. Tastes differ, and so do circumstances. The same varieties of Grapes do not succeed equally well with all persons. We perceive you have not found much difference of opinion on the question of white Grapes, as the majority of persons would have no hesitation in according the palm to the Muscat of Alexandria. It will be on the question of black Grapes, we imagine, that you have had conflicting replies. Probably several prefer the Alicante because of its appearance, but it is seldom sufficiently high in quality for a "high class" dessert; others no doubt have named Gros Colman for the same reason, and it is sometimes good, while Lady Downe's has its admirers. Gardeners who have the Black Hamburgh fresh and good will say "none beats it," but the majority of growers cannot rely on having it in good condition at this season. Then, a few may possibly name Mrs. Pince's Muscat, and those who have it in first-class condition have good reason to esteem it, for well coloured and ripened we doubt if there is a finer and better black Grape in use at the present time. You will thus perceive it is not easy to give a "plain reply to a plain question" as to which is the best black Grape for January. Our readers are quite at liberty to express their opinions on this point, and you might, perhaps, express yours, as you appear to have given considerable attention to the matter.

Gloria Mundi Apple (J. Mapleson).—You ask first "if we really consider this variety and Belle Dubois synonymous?" Our reply is in the affirmative. Next, as if anticipating our verdict, you inquire "whether 'the Apple' was raised in England or France?" as this, you think, would settle the question as to priority of names. Such questions are not so easily settled as you appear to imagine. In the first place the Apple was not raised in either of the countries named. It is of American origin, but some doubts exist as to where it was first raised, that honour being claimed by several different localities. The general opinion, however, is that it originated in the garden of a Mr. Smith, in the neighbourhood of Baltimore, and was brought over to this country by Captain George Hudson, of the ship *Belvedere*, of Baltimore, in 1817. It was introduced from America into France by Comte Lelieur in 1804. But from the account given in the "Allgemeines Teutches Gartenmagazin," it is doubtful whether it is a native of America, for in the volume of that work for 1805 it is said to have been raised by Herr Künstgarner Maszman, of Hanover. If that account is correct, its existence in America is, in all probability, owing to its having been taken thither by some Hanoverian emigrants.

Difficulties of a New Garden (M. Farmer).—Burnt clay would improve your stiff soil, but it is not to be regarded as indispensable. Coal ashes are much better; and a few heavy annual dressings effect such a thorough mechanical division of the soil as to render it permanently light and porous.

Divide the kitchen garden into quarters by two central paths intersecting each other at the middle of the garden, also make a path round the garden 6 or 8 feet inside the boundary; 4 feet is an ample width for the paths of so small a garden. This method of division gives facility of access to every part; it also gives four large square plots for the main vegetable crops, and borders for Strawberries, salading, herbs, and many other vegetables of which small quantities in succession are required. Fruit trees, whether espaliers or pyramids, should be planted alongside the paths, so as to encroach as little as possible upon the squares or borders. Shelter from the north and east is required in winter and early spring when deciduous trees are bare of leaves. Evergreen Firs must, therefore, be used either mixed of common Spruce, Scotch, Silver (*Picea peetinata*), or Austrian Pine, or separately. If the position is much exposed plant several rows, so as eventually to have a dense mass of foliage, the permanent trees to be 12 feet apart, with Larches between 3 feet apart. The Larches are gradually removed as the branches of the other trees spread, and afford a supply of stakes that is useful for garden purposes for several years. Keep the front row of this sheltering belt full 30 feet from the garden boundaries, so as to avoid risk of the roots encroaching upon the crops. In connection with shelter do not forget that a wall is not only valuable, but that trees trained against it very frequently have fruit in abundance when those out in the open garden have none at all.

Select Hardy Plants and Shrubs (*Idem*).—If you will make your query as to what flowers you shall plant somewhat more definite we shall then be able to assist you. Your expressed desire for "herbaceous borders" shows that you care for such plants, so we name a few, but there are numerous others worthy of a place:—*Acanthus latifolius*, *A. mollis*, *A. spinosus*, *Achillea Ptarmica flore-pleno*, *Scabiosa coccinea*, *Allium pedemontanum*, *Anemone japonica*, *A. japonica alba*, *Spiraea palmata*, *S. japonica*, *S. filipendula flore-pleno*, *Aquilegia glandulosa*, *A. chrysantha*, *Bocconia cordata*, *Carnations*, *Picotees*, *Pinks*, *Pyrethrums*, *Pentstemons*, *Delphiniums*, *Irises*, *Phloxes*, *Pæonies*, *Polygonums*, *Potentillas*, *Dictamnus Fraxinella*, *Monarda*, *Dielytra spectabilis*, *Meconopsis nepalense*, *Papaver orientale*, *Plumbago*, *Larperetæ*, *Tradescantia virginica*, *Zauschneria californica*, with all the old familiar varieties of bulbs intermingled, with space between for the best annuals, such as *Asters*, *Larkspur*, *Stocks*, *Mignonette*, *Zinnias*, *Candytuft*, *Phlox Drummondii*, *Petunias*, *Godetias*, and *Balsams*. Of evergreen climbers for your house take *Escallonia macrantha*, *Ceanothus rigidus*, *Berberidopsis corallina*, *Akebia quinata*, *Garrya elliptica*, *Cotoneaster microphylla*, *C. Simmondsii*, *Elæagnus pungens variegata*; and of deciduous sorts *Ampelopsis Veitchii*, *Lonicera flexuosa*, *L. brachypoda*, *Clematis montana*, *C. flammula*, *C. Jackmanii*, *C. The Queen*, *C. coccinea*, *Wistaria sinensis*, *Jasminum officinale*, *J. nudiflorum*, and *Solanum jasminoides*; and in planting mix evergreen with deciduous, so that the growth may blend and the walls never become bare. Give your gardener £65 a year, with cottage, fuel, vegetables, and milk to begin with, and if he proves a really valuable servant add to his wages subsequently, for be assured that liberality then will be to your mutual advantage.

Mushroom Spawn (*J. E., Essex*).—Your questions are exactly similar to some received from a correspondent some time ago, and answered as follows:—*Milltrack Mushroom spawn* is that which is found in the accumulated manure of horse or cow stables. It used to be plentiful in the tracks of horses that were employed in working mills and threshing machines in the olden time, hence its name. It is almost impossible to teach anyone to make Mushroom spawn bricks except by example, and it is not unlikely you will err if you attempt to make a "large quantity." Try a small quantity first. The following is the plan described in the "Cottage Gardeners' Dictionary," and is good when properly carried out:—"Take three parts of horse dung without litter, two of cow dung, one of decayed tanner's bark, and one of sheep's dung, and one of good loam; mix to the consistency of mortar, and mould in small frames like those used by brick-makers, 6 inches long, 4 broad, and 2 deep. Three holes to be made half through the bricks, an inch apart, with a blunt dibble for the reception of the spawn. They should be put on boards for the convenience of moving abroad during fine days, as they must be made perfectly dry, which they often appear to be on the outside when they are far otherwise internally. Before they are perfectly dry they require great care in handling and turning, from their aptitude to break; but in about three weeks, if dry weather, when perfectly dried, they become quite firm. To pervade them with the spawn, a layer of fresh horse litter, which has laid in a heap to sweeten, as for a hotbed, must be formed, 6 inches thick, in a dry shed. On this a course of the bricks is to be laid, and their holes completely filled with spawn; and, as the bricks are laid in rows upon each other, the upper side of each is to be scattered over with some of the same. The bricks are not placed so as to touch, so that the heat and steam of the dung may circulate equally and freely. The heap is to terminate with a single brick, and when completed covered with a layer 6 inches thick of hot dung, to be reinforced with an additional 3 inches after a lapse of two weeks. The spawn will generally have thoroughly run through the bricks after another fortnight. If, however, upon examination this is not found to be the case, they must remain for ten days longer. The bricks being allowed to dry for a few days before they are stored, will then keep for many years."

Names of Plants (*W. E.*).—We have frequently stated that we do not undertake to name florists' flowers, as it is almost impossible to determine them without comparing them with a large collection.

COVENT GARDEN MARKET.—JANUARY 16TH.

No alteration with the exception of Grapes and Cucumbers, both of which are in good demand at improved prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 5 0	Nectarines	dozen	0 0 to 0 0
"	per barrel	0 0	Oranges	100	6 0 to 10 0
Apricots	box	0 0	Peaches	dozen	0 0
Chestnuts	bushel	10 0	Pears, kitchen ..	dozen	1 0
Figs	dozen	0 0	" dessert	dozen	1 0
Filberts	lb.	0 0	Pine Apples English	lb.	2 0
Gobs	per lb.	1 3	Plums and Damsons	..	0 0
Grapes	lb.	1 6	Strawberries ..	lb.	0 0
Lemon	case	15 0	St. Michael Pines	each	2 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney ..	100	1 0	Mustard and Cress	punnet	0 2
Beet, Red	dozen	1 0	Onions	bushel	2 6
Broccoli	bundle	0 9	Parsley	dozen bunches	3 0
Brussels Sprouts	½ sieve	1 6	Parsnips	dozen	1 0
Cabbage	dozen	0 6	Potatoes	cwt.	4 0
Capsicums	100	1 6	" Kidney	cwt.	4 0
Carrots	bunch	0 3	Rhubarb	bundle	0 4
Cauliflowers	dozen	2 0	Salsafy	bundle	1 0
Celery	bundle	1 6	Scorzoneria	bundle	1 6
Coleworts	doz. bunches	2 0	Seakale	basket	1 0
Cucumbers	each	1 0	Shallots	lb.	0 3
Endive	dozen	1 0	Spinach	bushel	2 6
Herbs	bunch	0 2	Tomatoes	lb.	0 3
Leeks	bunch	0 3	Turnips	bunch	0 3
Lettuce	dozen	1 0			



NEW AND IMPROVED AGRICULTURAL MACHINERY.

(Continued from page 34.)

CORN and seed-dressing machines were a large and important part of the late Show at Islington Hall. The cellular class of rotary corn and seed-separators were more numerous than on any former occasion. At a former meeting of the Royal one of these, a French-made machine, was shown, and shortly after an improvement was patented and shown by Mr. Charles Dellar of Melbourne, Cambs. This year Mr. Dellar has exhibited an improved machine patented by him, the cup cells on the inner periphery of the cylinder being arranged diagonally. The cells can be made of any size, and the cylinders of any diameter and length. They are a practical success, and are in extensive demand for use by corn merchants and millers in cleaning home-grown corn as well as imported Wheat, Barley, and Oats, also by the farmer for separating seeds from his Wheat. At the same time they are recommended for the separation of Oats from Barley, as it is notorious that the best grain for malting purposes is frequently found in the samples of drege. We know one corn merchant who is a large buyer of drege, and makes it answer his purpose well to separate the Barley, &c., from samples of mixed corn. It can also be used for separating the grain when Beans and Peas or Beans and Vetches are grown together, and as this practice is becoming more general by Bean cultivators on strong soils it is of increasing importance. Corn and seed-drying machines can be made upon the same principle, and would not only prove better but cheaper than are Gibbs' drying machines; and to this we call the attention of Mr. W. Gibbs and other makers of corn-drying machines, the cell principle adopted being decidedly superior to any other plans yet discovered. Messrs. Burlingham, Innes & Co. of the Exchange Works, Hitchin, also exhibited a screen for the same purposes of separating corn from weeds, for which the power required in working is very small compared with some other machines. At the same time where large quantities are required to be dealt with two or more of these cylinders can be combined to work in one frame.

Messrs. R. A. Lister & Co. of the Victoria Ironworks, Dursley, Gloucestershire, exhibited a new and improved mill that will meet a long-felt want, and is capable of cracking or crushing from eighteen to twenty bushels of corn per hour, or grinding from six to eight bushels into meal of the finest condition adapted for pig or cattle-feeding. It can be driven by a small three-horse-power engine, and is so simple in construction that any ordinary labourer can manage it. Under our present system of feeding our horses, cattle, sheep, and pigs, it is of far greater importance than at any former period. The home farmer now never thinks of feeding his horses with whole corn of any kind, as he knows that crushing is of vast importance in feeding, but more particularly where some of the animals are aged and having often defective teeth. When crushed, however, meal should be mixed with pulped roots or damp chaff of hay to prevent waste. But in feeding our fattening cattle or dairy cows it is best to give all artificial or corn foods in the meal state and in admixture with cut or pulped roots. Again, with sheep feeding both cake and corn should be reduced to meal and mixed with cut roots in order to prevent waste. Pigs also at the early stages of feeding should get meal mixed with pulped roots, varying in proportion to their fatness.

Messrs. Vipan & Headley, of Church Gate, Leicester, showed a number of dairy appliances, and it is said that their newest railway milk-churn cannot be improved upon, as it is most substantial, being made of steel in one plate, with only one seam, and coated with tin.

The top of the churn is so arranged that any dust or dirt accumulated during transit does not fall into the milk when the lid is hurriedly taken off or washed by rain. The arrangement of the lid is such that any milk displaced during transit is thrown back into the churn, instead of washing up the sides of the lid and ventilator. The fastening can either be used with or without a lock. The bottom of the churn is stamped by machinery and driven into position, rendering it nearly impossible for the rim or hoop to be knocked off. The fastenings are out of the way and cannot be injured when churns are placed on each other; neither are there any projections to knock off when the can is tilted to drain. The handle is rivetted to an independent plate and soldered on the can.

Messrs. Barnard, Lake & Co., of Rayne Foundry, Ipswich, have added further improvements to the patent thatch-making machine invented by Mr. Gooday for stitching straw, for covering corn and haystacks, root heaps, sheep folds. This is really of consequence in use, now it is customary to make hay and corn ricks in the field, which are often seriously damaged by rain before the professional thatcher can do the work of drawing and laying on the thatch in the usual way. Stackcloths can be dispensed with. The saving by using machine-made thatch is that it saves straw, time of yealming, and fetching of water, considerations of importance in the hill districts. It is quite proof against rain after a dry time, being made so firm in a dry state that it never becomes loose. Can be made and stored away in winter in readiness for the busy periods of haying and harvest. An improvement is noted this year, the string or yarn used for binding being not only cheaper but stronger. Comparisons, however, may be made by the home farmer between this thatching as against corrugated iron, which is now often used, being made in plates, is easily put on and will last for years.

Mr. Wm. Wade, of Hunslet Lane, Leeds, manufactures a barrel churn, of which the important advantages are that it produces butter in a remarkably short time, it has a discharge valve and a catch to hold the churn firm while the cream is being poured into it and also while the butter is taken out. It is equally adapted for churning milk as well as cream; the axles being fixed at the sides give the churn an end-over-end motion. The advantages of which are, not having any beaters or dashers in the inside it is very easy to keep clean; the butter can be taken out without being touched by the hand; the opening into the churn is at the end, on which is secured the loose lid, which is easy to fix or take off, and being made air-tight there is no waste of cream; it produces the butter in the globular form. We must close our subject for the present by the notice of Fairbanks' platform weighing machine, which has lately undergone various improvements, and has wrought a revolution in almost every department of business where the measurement of quantities is required relating to heavy bodies of every kind connected with the commerce of the country, and are specially useful in farm practice, for not only can live cattle be weighed, but also every item great or small being the produce of the land. This machine is sold by Messrs. E. & T. Fairbanks & Co., of Upper Thames Street, London.

WORK ON THE HOME FARM.

Horse Labour.—In all those cases where from necessity the seed time or Wheat has been delayed, it may now be done with a fair prospect, for if the seed can be buried and the land worked off into proper shape and form on the surface, for the heavier the land is the better in January or February, simply on account of the same opportunity as to condition and state of the land is afforded to the young Wheat plant as in the autumn seed time, and which delights in a close moist state of the land. But when in January and February the soil happens to be dry, should the land work off ever so fine it is not kind for Wheat, and would favour a large growth of weeds of whatever kind may be indigenous to the soil. We therefore recommend when the ground is not in a promising state for the production of Wheat as above stated, that it should be held over and prepared for Lent corn, taking Oats or drege on the strong land, and Barley on the light, dry, and friable soils. The weather has not been favourable for threshing corn ricks, but every opportunity should be taken, as this work, involving some horse labour, we designate as part of the winter work for horses on the farm. If the corn is not sold it may be stored in the granary, but it must be an unknown verse in the chapter of accidents which will make any important rise in the price of corn. At present we are carting and laying-out chalk, and we obtain this article in as fine state as possible, otherwise much hand labour is required to reduce large lumps into a beneficial and workable state. We having grubbed-up hedges and drained the ditches on part of our farm, it is convenient to lay out the chalk upon the land thus gained as it is cast from the waggons and carts. Some horses are now engaged in work connected with orchard-planting, especially of the best sorts of Apples, Filberts, Cobnuts, Plums, Damson bushes, also bush fruit generally, such as Gooseberry and Black Currant. Carting and laying-out farmyard dung on to the Clovers wherever the land will bear the carts should be done, and also carting earth as composts for pasture and park lands. At the same time earth should be stored and kept dry until it is required for the bottoms and floors of cart-horse stables, also all cattle pens, as well as pig pens, for it is notorious that the loss by drainage from farmyards is tremendous. Where open and under ordinary

management we never used and converted annually less than 150 cart-loads of earth every year, after having been thoroughly saturated with urine from all the tables and pens on the farm.

Hand Labour.—In the Hop-growing districts much care and thought should now be used in providing Hop-poles, and these may be obtained from various places on the estate if attention be given to it, as a necessary item for growth in connection with Hop gardens, now where there are wide rows between the fields. Hop-poles can be obtained by reserving the wood until the stems are of sufficient strength and length. Maple, Ash, and Oak are adapted for this purpose. In the woodlands also it is the same, except that where these underwoods are absent the land may well be made out by the planting of Sweet Chestnut plants, which will come to hand very quickly and answer a good purpose. Hedging, ditching, and banking will still be going on where required. also the planting of Thorns for fencing should be done. Men will be spreading dung on the Clovers, chalk on the fallows, also assisting in the work of orchard-planting. It is quite an undecided point with many as to what should be grown in young orchards. It is even a question with some as to whether grasses should be laid down or crops like Potatoes, &c., grown, also Mangolds and Cabbage. This will, of course, depend upon the soil. When the soil is poor it should be trenched before planting, and where the land is rich and deep it may not be trenched, but only carefully planted, and when the land is seeded down in this way too luxuriant growth of the trees is avoided, and the bearing wood only is encouraged.

Live Stock.—The lambing folds for both Down and long-woolled ewes will have been made or are making. In the districts where Hampshire Downs are kept as a breeding flock lambing is now going on, and those districts where the long-woolled breeds are reared lambing will soon commence. When either ewes or lambs fail in health it should be carefully observed by the shepherd which requires treatment and extra attention. It may, however, be both ewe and lamb, for in some cases when ewes have an overflow of milk the lamb cannot take it all; hence an accumulation of milk, which coagulates in the udder and injures the young lambs. It is imperative that the milk should be drawn away daily until the lambs can keep pace with the supply of milk. When neglected it is a fruitful source of injury, frequently applying to both ewe and lamb. When young lambs prove unhealthy two complaints particularly prevail—namely, the "white scour" and "rheumatic affections." The first is frequently beyond control, but we find the best remedy is ten drops of tincture of opium and a little prepared chalk in a half wineglass of warm water. This is for a lamb at any age under one month, and should be given every three or four hours until cured. The rheumatic complaint affects the use of one or more legs, and the animal becomes crippled and cannot follow its dam. This disease, unlike the first-named, has no remedy. The lamb should be destroyed and replaced by another, taking care to first draw away any accumulation of milk from the udder, as coagulated milk is the most fruitful source of disease amongst young lambs.

OUR LETTER BOX.

Alderney Cow (Inquirer).—We should not choose North Wales for any of the Channel Island cattle, but the Guernseys are the most hardy and the best suited for a cold hill district; still in vales and sheltered positions Alderney and Jersey cattle may do with careful management. From the second week in May until the 1st of October they may feed on grass in the pastures night and day, but afterwards they should lie in their pens at night and receive a full allowance of good hay, bran and Potatoes, Cabbages, Carrots, or Mangolds, with what grass they can obtain in the daytime. This food will enable the cows to yield plenty of milk and cream for butter. If they calve in the early autumn it is, however, best not to have them in full milk during the winter. They will then, if dry, only require hay and any grass they can pick up on the pastures. For management all the year through we advise you to obtain from the office of this Journal the number dated May 19th, 1881, containing full particulars of management of the Channel Island cows all the year through.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Baromet- er at 32a and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1884.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
January.											
Snnday	6	29.839	48.6	47.0	W.	44.0	51.8	44.3	58.4	38.8	—
Monday	7	29.973	43.4	42.0	N.W.	43.8	47.2	41.4	66.0	37.5	0.067
Tuesday	8	30.207	39.7	37.8	W.	42.6	47.4	35.4	49.4	30.2	0.108
Wednesday ..	9	30.298	44.8	43.8	W.	42.5	51.8	39.0	53.7	38.0	—
Thursday	10	30.423	44.5	43.8	W.	43.2	51.5	43.4	68.4	38.5	—
Friday.....11		30.035	44.3	43.1	W.	42.7	49.0	41.3	71.1	34.8	0.035
Saturday	12	30.409	37.6	35.6	N.W.	41.2	43.8	35.0	63.4	29.7	—
		30.169	43.3	41.9		42.9	48.9	40.0	61.5	35.4	0.219

REMARKS.

6th.—Fine and dry, with sunshine at intervals.
7th.—Beautiful sunrise; bright clear morning; overcast afternoon; sharp shower 5.25 P.M.; rain in evening.
8th.—Fair at first, afterwards wet and dreary; moonlight night.
9th.—Fine pleasant day, but not very bright.
10th.—Fine, with bright sunshine; lunar halo all the evening; bright moonlight night.
11th.—Fine generally; heavy shower at 1.30 P.M.; bright moonlight night.
12th.—Fine bright day, and colder; beautiful sunrise and sunset.
A much brighter week; temperature, especially at night, much above the average.—
G. J. SYMONS.



COMING EVENTS

24	TH	Royal Society at 4.30 P.M.
25	F	Quekett Club at 8 P.M.
26	S	Royal Botanic Society at 3.45 P.M.
27	SUN	3RD SUNDAY AFTER EPIPHANY.
28	M	Royal Geographical Society at 8.30 P.M.
29	TU	
30	W	Society of Arts at 8 P.M.

HYBRIDISING POTATOES.

A NEW phase of that highly important subject, the production of disease-resisting Potatoes, has been opened by Mr. Baker of Kew, who, at the last meeting of the Linnean Society, gave the outline of a series of exhaustive researches and observations respecting the tuber-bearing species of *Solanum*. His investigations were undertaken at the request of Lord Cathcart, and the object was to determine the number of really distinct tuberous *Solanums*, their distribution, and the characters of the climates to which they are peculiar. To effect this satisfactorily it was found necessary not only to carefully compare a very large number of specimens from the various districts of North and South America with the descriptions given by botanists who have reviewed the genus, but also to determine the range of variation in the Potatoes cultivated in English gardens. The latter portion of the task was undertaken last autumn, and the varieties grown in the grounds of the principal seedsmen were fully examined and classified, one result being that Mr. Baker considers it incontestably proved that all are descended from the true *Solanum tuberosum*, and that no other species has played any part in the production of cultivated Potatoes.

This point being settled, it became necessary to determine how many of the tuberous *Solanums* described in botanical works merit the rank of species, and the conclusions arrived at under this head were that the majority of those mentioned in Decandolle's "Prodromus" and other works are simply varieties of *S. tuberosum*, and that, including this, only six well-marked species can be named—*i.e.*, *S. Maglia*, *S. Commersoni*, *S. cardiophyllum*, *S. oxycarpum*, and *S. Jamesi*. These extend in geographical range from Chili to New Mexico and the Rocky Mountains, and consequently inhabit climates varying greatly in temperature and humidity, both of which have an important bearing upon the adaptation of the progeny of such species to cultivation in the British Islands. In Chili is found the true *S. tuberosum*, which grows wild at great elevations in the Andes, where at least for a great portion of the year the climate is exceedingly dry, and therefore differing considerably from the average English climate.

In the lower portions of the district, in the valleys, and as the coast is approached, the humidity is greatly increased until the rainfall is very high and the vegetation correspondingly luxuriant. There is found the *S. Maglia* of Baker, which he considers easily separable from *S. tuberosum* by characters of the foliage, flowers, and fruit, which need not be detailed here. It produces tubers of moderate size, 2 to 3 inches long, somewhat kidney-shaped, solid, and when cooked of fair flavour, evidently possessing a large quantity of starch. This has been grown at Kew for nearly twenty years, but has been generally regarded as the true *S. tuberosum*. It is perfectly hardy, the roots being left out unprotected, is very strong in habit, with broad leaflets, and it has not been attacked by disease, the produce being abundant

and regular. Sixty years ago a coloured plate and description of the so-called wild *S. tuberosum* was given in vol. v. of the London Horticultural Society's Transactions, together with a full description and results of its culture in the Society's gardens, by the then Secretary, Mr. Joseph Sabine. This Mr. Baker considers to be really *S. Maglia*, and as the results there given are very favourable, he regards it as good evidence of what careful cultivation might effect. In "A Naturalist's Voyage Round the World" Darwin referred to the wild *S. tuberosum* as being found in damp forests of the lower parts of Chili and in the neighbourhood of Valparaiso, and comments upon the remarkable range of climate the plant endures, from the arid regions of the Andes to the humid districts in the lower parts. Here again Mr. Baker regards *S. Maglia* as the subject of Darwin's observations, and not *S. tuberosum* as was supposed; and many other facts were adduced to prove that the two species had been confounded by travellers and botanists.

A third species, *S. Commersoni*, is found in Brazil, and is very distinct from the two former, being of slender habit, with small leaflets and deeply cleft corollas. This has been recently introduced to the Continent under the name of *S. Ohroni*, but has never been cultivated in England. It has small tubers, said to be of good quality when cooked, but less is known respecting it than of *S. Maglia*, though probably more will be heard of its characters during the coming season. Many forms are found in Brazil, but they are all referred to this species.

Mexico claims three species—*viz.*, *S. cardiophyllum*, *S. oxycarpum*, and *S. Jamesi*; but the only one of these that appears likely to prove of horticultural importance is the last-named, which has been grown at Kew during the past year. It is of dwarf habit, with small leaflets and deeply cleft corollas, like *S. Commersoni*, and bears very small tubers, none at present grown exceeding 1 inch in diameter; but they are very numerous, and when cooked extremely floury and pleasantly flavoured.

The practical result of these investigations is that Mr. Baker recommends the culture of *S. Maglia* and *S. Commersoni* for hybridisation with *S. tuberosum*, with the object of raising a type of Potato that should, if possible, unite the prolificness, good quality, and size of tuber of the latter with the damp-enduring character of the former, which would be likely to render Potatoes more adapted for our moist climate, and, therefore, less liable to disease. The importance of this suggestion, and the reliability of the facts upon which it is advanced, render it well worthy the attention of all who desire to improve this vegetable, and the thorough manner in which the investigations have been conducted merit the highest commendation.

If, as appears more than probable, that the species, *S. Maglia* especially, possesses greater inherent vigour, and is naturally adapted for a moist climate, it necessarily has claims to the attention of hybridisers of distinctly greater importance than those of *S. tuberosum*, which for the past century cultivators have been so busily engaged in improving. As far as regards the productiveness and quality of our best varieties there is little to be desired, but a greater disease-resisting power is urgently needed. It is the more likely that this may be imparted by the robust and moisture-enduring species *S. Maglia*, since experience has shown that vigour of plant is an element of success, inasmuch as with scarcely an exception what are termed "disease-resisting" late or main crop varieties are strong growers with more or less ligneous stems and robust foliage. It is also established as a rule with only the few exceptions necessary to prove its existence, that an excess of moisture in the soil and the air at a critical period of the plant's growth is the great predisposing cause of the murrain that devastates the crops. It is seldom virulent in dry years, but always more or less so in wet ones. Varieties that ripen very early, and especially when grown in dry warm positions, are rarely seriously

attacked, and never unless the rainfall is abnormally great when they are approaching maturation; and grown under glass there is no disease except by some mismanagement in ventilation and watering. The path of safety lies in the direction indicated—a race of Potatoes, the offspring of a moisture-loving stock, the habitats of which are the low coast line and ravines where *S. Maglia* is found, and not that of a plant whose home is on dry mountain sides, as in the case of *S. tuberosum*.

If peradventure Mr. Baker shall have proved that the labours of cultivators and hybridisers have been devoted to improving the wrong Potato, and if his investigations should result in varieties being raised naturally adapted to our climate, he will deserve a national tribute which will be shared by the great establishment which he adorns.

HORTICULTURE IN 1883.

WHILE our good friend "Wiltshire Rector" always gives us his sound and cheery advice for the time that is before us, and shows us how best we may benefit others even when carrying out our own plans, it has generally fallen to my lot to give at the beginning of a new year a *résumé* of that which has just closed; and its bearings on the present we all delight in ere they pass from memory, and in these days of express speed they very soon do so. They are like the landscape through which we rush in the "Flying Dutchman." We catch a glimpse of the stately towers of Windsor, of lovely reaches of our queen of rivers, of quiet homesteads and snug country homes; but before we have time to think much about them they are gone from view. And so with events now. The events of months and years rapidly fade from memory, and with them the lessons which they teach. It is not, then, I think, a useless task to bring the past year to mind and see what it has done for horticulture and what notable things it has brought before us.

In a review of our subject the proceedings of the Royal Horticultural Society naturally claim prior attention. Although in consequence of the greater exhibition at South Kensington no adequate space was left for grand horticultural shows there, yet the Society was enabled to carry out an exhibition at Chiswick—the Apple Congress, which for its practical utility and far-reaching benefits must be noted as the horticultural event of the year, and that it will give a great stimulus to the cultivation of this most valuable of our fruits there has been already ample proof, while the report which is yet to come will no doubt be appreciated by all who cultivate it. The fortnightly meetings of the Society still maintain their interest; while the evening meetings at the Linnean Society were so successful that they converted most of those who went there into so many Oliver Twists, "wishing for more"—not on the same night, as some of the papers were too long, but for more meetings of a similar character. What its future is to be no one seems able to forecast: let us hope that more prosperous days may be in store for it. The exhibitions at the Royal Botanic Society have been successful; and as delightful promenades with good music and a fashionable company they cannot, with the one remaining element, fair weather, fail to be so. The Crystal Palace Company under its new management is evidently looking upon its flower shows as one of its best cards. The schedules of the exhibitions during 1883 were more liberal than has been for some years the case, and there is a promise of those of 1884 being still more so: and yet flower shows as such do not seem to pay! I wonder whether there was truth in what a well-known horticulturist said to me the other day. The fact is we want to do away with big shows in London for a few years. People have had too much of them, and if they ceased for a time would then ask for them and appreciate them when they were held.

I think perhaps one of the most interesting exhibitions of the year was that held by Mr. Bull at Chelsea, where for weeks during the height of the season a beautiful collection of flowering Orchids was visited by the most eminent cultivators and by vast numbers of the nobility and gentry. Not only were the plants themselves models of good cultivation, and beautiful in the profusion and variety of their blossoms, but they were arranged with great taste; and certainly the remembrance of the sight is to me, and I doubt not to many others, one of the most pleasant memories of 1883. The *furore* for Orchids seems to grow with ever-increasing ardour—sale after sale at Stevens' and Protheroe & Morris' disperse thousands and tens of thousands of Orchids over the kingdom. The older growers seem to have lost none of their zeal, if we may judge from the prices given for them (the £243 given by Sir Trevor Lawrence for *Vanda Sanderiana*), while new growers are starting up in all directions. Nor is this to be wondered at. The mysteries that once surrounded Orchid-growing are fast being dispersed; the abnormally high temperature

is being discarded, for it is seen that they do not require it, and of course this means less expense (though, from the prices given, few Orchid-growers seem to think much of this); and their varied and most lovely forms, their often most delightful perfume, their continuous flowering, so that the Orchid house is never without flowers, all combine to make it what it is—one of our most popular flowers.

Of other flowers there has not been, I think, during the past year anything very noticeable. The Rose still maintains its popularity, and the success which has attended Mr. Bennett's hybridising (although I dissent as much as ever from the term "pedigree Roses," and hold my hand still with regard to Her Majesty), has given hopes of still further improvement. It would seem that when flowers get to that pitch of perfection that there is very little difference from year to year on the new varieties that their day is to a certain extent over. It would be difficult to say what further improvement can be effected in the Pelargonium either in the Show or Zonal varieties, and I suppose in consequence of this the Pelargonium Society feels that its work is done. Can, again, the Begonia advance much further? With flowers 6 inches in diameter and of all shades of colour, with double varieties of great beauty and substance, we are tempted to ask, Is not their day nearly over also? The past season has brought before us some very remarkable new varieties, so remarkable that we may well ask, What next? The single varieties raised by Mr. Laing and the double from abroad are alike wonderful and beautiful.

That horticulture is throughout the country not only holding its own but progressing is, I think, manifest to anyone who goes much about the country. The ever-varying pleasure which it gives must make it popular, while the low price at which so many of its productions are now offered, and the liberal spirit which marks most horticulturists, tend still further to increase it; and we are delighted to find how the taste for herbaceous and alpine plants is on the increase. In all directions we see the old bedding-out system giving way to the long-neglected old-fashioned flowers, and those who follow out this pursuit have stores to go to which our forefathers knew nothing of. The recent introductions in these classes far outnumber the old-fashioned flowers, and the immense variety and great beauty that exist amongst them will, I hope, still more encourage others to cultivate them.

As ever, the death roll for the last year numbers amongst it many well-known and deeply regretted names. The genial and hearty Harper Crewe, one of our most distinguished herbaceous and bulbous cultivators, is sadly missed; then we miss the portly form and honest face of Henry Hooper. The gentle Edward Pilgrim is no more with us, and the closing days of the year have brought us the sad news of the melancholy death of Thomas Speed, and thus it is each year. Solemn notes of warning to us who remain!

One noted name still is with us, fresh and vigorous as ever—in fact, recovering its youth—cheering with its smile many a youngster to whom we veterans must give way ere long—the Journal. Age does not seem to add a wrinkle to its brow or a grey hair to its head, and I but, I am sure, echo the wish of all its readers when I say, *Esto perpetua*.—D., Deal.

ROOT-CULTIVATION OF VINES.

IN common, no doubt, with others similarly situated, I have often been questioned as to the cause of and remedy for Vine roots going down into the drainage or subsoil, and not taking possession of the surface half of the border; and very recently we had some interesting remarks on this subject from an amateur in the south of England who was at the time engaged in getting his Vine roots out of the depths. It is, of course, very undesirable, especially in certain subsoils, that the roots of Vines should be chiefly in the depths of the border, and not active and numerous near its surface. The cause of such a tendency on the part of Vine roots may be an inherent disposition to go downwards, or there may be several conditions which force the habit in them. At all events the roots of Vines can be led to multiply themselves at the very surface of the border, and in the great majority of, if not in all, circumstances it is most desirable that they should do so.

The fact that the roots of Vines require to be as carefully cultivated as their stems is in numerous instances not systematically recognised nor acted upon. What is considered an orthodox border is made, and young Vines planted, and while every necessary detail connected with the welfare of the stems is attended to with care, that upon which success mainly depends—namely, the culture of their roots, is not attended to with the regularity and care that is necessary to keep them where they ought to be—near the surface of the border.

The first step in leading the roots in their downward course is in mixing into the border a quantity of ordinary manure from

the farm or stables. Naturally the roots have the instinct, if the term may be applied, of going where they get most to feed upon; and planted in a border thus enriched, with the surface of it left uncovered, the roots go down in search of the more moist and consequently more available elements of nutrition at a distance from the exposed drier surface. If at first no such manure is mixed in the soil, but instead of it bones and other appropriate manures, and immediately the Vines are planted the farmyard manure be placed on the surface as a mulching, and it be kept moist all through the season of the growth of the Vines, the moisture and elements of nutrition in the surface dressing will attract the roots. It is not necessary nor desirable—should the first summer be dry and hot—that more water should be applied than will keep the surface third of the border moist by artificial waterings. The bottom will take care of itself, and if the upper portion is thus kept moist the roots will keep to it as sure as water runs downhill.

Some time late in autumn or in winter when the Vines are at rest the mulching should be removed, and also the surface soil till the roots are reached, and immediately over them should be laid 3 or 4 inches of fresh loam and horse droppings in the proportion of four parts to the former to one part of the latter, and also a few barrowfuls of old mortar or charcoal rather finely pounded, then over the whole throw as much rough stable litter as will keep the frost out. After the Vines have begun growing in spring remove the litter and prick into the surfacing of loam artificial manures in the proportions directed by their vendors. Then, or some time before there is any chance of drought affecting the surface of the border, carefully lay on the 3 or 4 inches of good farmyard manure, and keep it moist as formerly described. If this process is repeated every season it will keep the roots at the surface in the greatest health and activity, and it is an operation that does not involve much labour. This is what I would term "root-cultivation," and when it is neglected the roots go down in search of moisture and nourishment because they cannot get such at the surface when these operations are not systematically attended to.

The whole of our borders here are so treated annually a regularly as the pruning is done, and when the mulching is removed the roots are found swarming close underneath it. No ordinary dung was put into the borders at first, and the surface of the borders has never been dry. I hope these remarks may be useful to some of your numerous readers who may perhaps be wondering why the Vine roots are so deep down instead of being very near the surface.—D. THOMSON, *Drumlanrig*.

"SINGLE-HANDED"—A SAD CASE.

"WHERE is that excellent man 'Single-handed?' Can he not join usefully in the interesting discussion on Vines?" is the inquiry in a letter before me, and not by any means the only one that has been written of the same purport.

The time has arrived when the readers of the Journal should be made acquainted with one of the saddest episodes in the life of a gardener that I trust it will ever be my lot to chronicle. Only on two occasions have I had the painful pleasure of visiting this truly excellent man, accomplished gardener, and earnest temperance advocate—once in his bed in a Scottish cottage, from which he was not expected to rise, and again, and recently, similarly prostrate, hovering between life and death, with a group of children and sorrowing wife around him, in a strange place 400 miles from his Scottish home.

That distance he had travelled to enter on an appointment, but before he could take charge he was stricken down. When the skill of the best medical men was exhausted and their patient was regarded as sinking, he asked for Grapes, since everything, even water, caused blood-vomiting. These were given tremblingly, and to the astonishment of all were retained. It was then my great privilege, through the generous kindness of private friends, whose valuable aid I now gratefully record, to maintain a steady supply of Grapes, and in a fortnight such was their healing power that nourishing liquid food could be taken. It was given under medical supervision, and for three weeks, and again by the kindness of friends, with apparent benefit; but a sudden and serious relapse has occurred, and now, should our friend recover, the case must be a protracted one.

Grapes are the sheet-anchor. If any persons who may be able to send a bunch, or would otherwise like to assist one of the worthiest of men, will communicate with me, I shall be glad to reply to their letters.

"Single-handed" has now been prostrate for nine weeks and is solely dependent on his resources, necessarily vanishing, since he has not been able to follow his occupation regularly for some eighteen months, and his illness has prevented him joining the Gardeners' Benefit Society. Although he is not likely to want, still, as there must be many who would be glad to share in his restoration (if that blessing is vouchsafed), I now accede to the strenuous wishes that have been pressed during the past month by those who know the case, and make the painful circumstances known.

I may add that his illness has been the direct result of laborious work, and that the vital organs are quite sound; on that account there is hope that if he survives the present serious affliction he may with great care and

a long rest from exhausting physical labour eventually regain his lost strength, and practise successfully and teach effectively in the calling that he loves so well.

With the object of assisting in a small way I have undertaken to distribute seeds from his beautiful hybridised Alpine Auriculas, of which so many applicants on a previous occasion failed to obtain a supply. Packets will be sent for 2s. 6d. each in rotation to those applicants who remit the requisite amount and enclose a stamped directed envelope, and if desired the money will be returned should the stock be inadequate to meet all demands. The seed now at disposal was gathered last summer and kindly given to the raiser of the plants to help him in his unfortunate position by his late employer.—J. WRIGHT, 171, Fleet Street, London, E. C.

WALDSTEINIAS.

NEXT to Geums none of the Rosaceæ compare favourably in point of compact habit and floriferous character with the Waldsteinias. This genus, like many more, has undergone some changes, and at one time



Fig. 9.—Waldsteinia trifolia.

between Dalibardia, Comaropsis, and Waldsteinia numbered over half a dozen species. In the "Genera Plantarum," the first has been sunk under Rubus, the second under Waldsteinia. This changing naturally resulted in a reduction of species also, and now only two or three at the most really good and distinct garden plants compose the genus.

Waldsteinia trifolia, Koch (*W. sibirica*, DC.; *Comaropsis sibirica*, Tratt).—The plant shown in the accompanying fig. 9 is a native of southern Europe, and although long introduced to this country its merits do not seem to be appreciated as they deserve to be. For planting in all sorts of positions, either in exposed places on the rockery or in the deep shade of woods, it will be found very useful, as it grows in both with equal success. It is also a very desirable plant for a place near the front of a mixed flower border. Dwarf in habit, it seldom attains a foot in height, and the loose corymbs of Buttercup-like flowers are really very attractive, and are developed profusely. The leaves, which are divided into three leaflets, are borne on creeping, chiefly underground stems; they are slightly hairy, and serrated at the margins. This plant seems to run into the *W. fragarioides* of DC., which is a native of America, and is only distinguished from *W. trifolia* by its oblong petals and glabrous capsules. In *W. trifolia* the petals are round, the capsules hairy. They are much alike in habit and profuseness of flowers.

W. geoides.—A native of Hungary, and an old and much-admired

cottage garden plant. It is easily distinguished from the above two by its large, round, five-lobed leaves and smaller flowers. It grows about 6 inches high. Beginning to flower in May it extends over several months. It grows in shady woods, and is an admirable plant for covering bare spaces under trees.—M. S.

SUMMER AND AUTUMN CAULIFLOWERS.

It often happens that when the earliest batch of Cauliflowers is cut there follows a period when these are not only scarce but not to be had at all. It has been my practice to sow in a box at this time a few seeds to produce plants which follow those now in the open quarters. The plants merely need to be kept growing slowly, and in March require to be pricked out in frames or in a sheltered position in the garden, to be thence transplanted to the ground set apart for them. We also transplant from seed beds those which have stood over the winter, but as a rule these are not satisfactory, buttoning being very general among them. Those from seed sown now do not button. Curiously enough, if autumn-sown plants are placed out in January they have very little tendency to button. For the past few years I have confined myself to the Early Dwarf Mammoth for the summer supply of this highly esteemed vegetable. Early London is a good variety, but I have not always obtained it true to name, and in growth it is much stronger than the Dwarf Mammoth. The new forcing varieties are useful for early work, and one of the best early autumn varieties is King of the Cauliflowers, though I may say that I find no difficulty in keeping up a supply with the first named and Autumn Giant, of which a few seeds are also sown now, and treated in the same way as stated for the early varieties. To those who may have a difficulty in deciding upon Autumn Giant or the newer Eclipse for an autumn supply, it may be noted that both are excellent. Both require very rich soil and plenty of space to do them justice, the former having an advantage in being later than Eclipse, while it may be obtained quite as early by sowing as above recommended at this time.

There is also this to be noted in connection with these late sorts as distinguished from earlier varieties, they must have a long season of growth, and require a richer soil to grow them well. A little guano as a surface dressing will do wonders in bringing on early Cauliflowers, but Autumn Giant must have the something in the soil, though surface dressings are not to be despised in its case either.—B.

VINES BLEEDING.

This has been a source of anxiety to many gardeners, and numerous remedies have been tried from time to time, some of which are efficacious. Styptic specially prepared is excellent, and will prevent bleeding if applied in time, so as to be properly hardened. In the discussion respecting "Stored-up Sap in Vines" I learn the Vine in bleeding loses nothing but water at a certain season—that is, before the leaves expand. If this be a fact I need not trouble myself any more about my Vines bleeding or placing styptic on in good time. I can give my Vines two gallons of water for every one they lose in sap. Mr. J. Muir in the *Journal* of April 5th, 1883, gave us an account of a Vine that had lost gallons. He invited predictions as to the effect on the Vine, but none were made as far as I saw. He said he would let us have the result, and I for one have been looking for the fulfilment of his promise.

I have a small house occupied with Vines of Lady Downe's, which on the score of bleeding have always been a mystery to me. I generally prune them about the 1st of February each season. From this time until near the end of the month all seem lifeless, but just as the Vines and the house are being cleaned bleeding commences, and in the mornings the sap is dropping all through the house, and continues for about eight or ten days. It then ceases, the Vines seem as lifeless as they did a fortnight previous, and for three weeks or a month there is no perceptible start in the growth. This I cannot understand, but if the Vines were to start bleeding and continue doing so until they were in leaf I could. Perhaps Mr. Wm. Taylor, "Non-Believer," or some of the many able correspondents who took part in the "stored-up sap" discussion will be able to explain it, and I am sure to the benefit and interest of many others. Though I took no part in this discussion I cannot help voting for Mr. Taylor, as I have always seen Vines, &c., liberally treated the season before starting strongly; and, on the other hand, those treated badly always did correspondingly the following season. I believe all fruit trees "lay up a store," according to their resources, and hence Pear and Apple trees have only a good crop every alternate year, and Vines are very similar.—COMBER, *Co. Down*.

CULTURE OF POINSETTIA PULCHERRIMA.

THIS plant is a very great favourite with all who possess a stove. It is one of the most useful flowering plants for decorative purposes at this season of the year, but half a dozen good healthy plants with fine bracts make more show than twenty unhealthy plants, therefore a few hints on the culture will be acceptable to young readers of this *Journal*.

After the plants have flowered they should be pruned to about half a dozen eyes and removed into a little bottom heat. They will produce abundance of shoots in a very short time, and when

these are about 2 inches long they may be taken off with a heel. Insert about eight cuttings in a 48-size pot, pressing them in firmly with a dibber, taking care not to bruise them, or they will not strike. Employ a compost of equal parts of good sandy loam and leaf soil, and plunge them in a little bottom heat—they will strike freely. They should then be potted off into 60-sized pots, using a compost like that recommended for old plants. After they have recovered from the shift they should be hardened gradually to the same temperature as the old plants. As soon as the roots become well established they should be placed in 32-sized pots. These plants will make good specimens by winter, suitable for associating with Ferns.

About the middle of June the old plants should be pruned to within two eyes of the previous year's pruning. Then they should have all the old soil shaken off the roots and potted in a compost of two parts fibry loam, one part leaf soil with some decomposed fowl manure, a little sand, and a 3-inch potful of bone dust to the barrowload of soil. Pot them rather firmly. They should be started in a cool frame with a south aspect, keeping the frame closed till they are growing freely; then ventilate a little to prevent their being drawn, breaking off all the weak shoots that are not required, leaving two or three, which will be quite sufficient if large bracts are desired. When about 1½ inch long they should be plunged in some coal ashes in a sunny position. The soil should never be allowed to become dry or the leaves will fall; they should have a supply of liquid manure about three times a week. Before the frost appears the plants should be shifted into a frame, keeping them close to the glass, covering them on cold nights, and ventilating freely on favourable occasions. As soon as the winter commences they must be housed in a temperature of 48°, falling to 45°, still keeping them near the glass, for the less growth they make in the autumn the larger the bracts will be. When the bracts are showing the plants may be removed to a stove temperature to develop, and when fully expanded they may be placed in an intermediate house. Under this treatment I have seen heads of bracts fully 13 inches in diameter, with leaves down to the rim of the pot.—C. H. STEPHENS, JUN., *Lyne Gardens*.

HOTBEDS AND THEIR MANAGEMENT.


THERE are many young gardeners who do not know the proper way to make a hotbed. I believe it was thought amongst old gardeners to be one of their qualifications, and from my father who is one of the old school I had my first and only lessons in the art. A number of gardeners and amateurs have to trust to hotbeds for producing their Cucumbers, Melons, propagating, raising seeds, &c.; and if it is desired to grow good Cockscombs a hotbed is the right place to produce them. Young gardeners of the present day have not the makeshifts to contend with that our fathers had in their young days, and by only having experience with the modern appliances of the present time, are generally in a fix when they first take a situation on their own account, if they do not find all the modern conveniences. Of course they are expected to produce as good crops of Cucumbers, Melons, &c., as was expected from gardeners they lived under who had all suitable convenience for producing them; but to succeed they must adapt themselves to circumstances and make a hotbed for a start.

If Oak or Beech leaves can be procured so much the better. Add to the leaves the same quantity of long stable dung as will make the bed, and turn the heap two or three times to prevent overheating, which will cause the material to dry, and if it was made up in this state very little heat would be procured; if it should get a little dry, or the dung may be rather dry in itself, it should be well watered to cause it to heat satisfactorily, as a lasting heat is what is required, not a violent heat at first, which is exhausted by the time the material is in a proper condition for making the bed. Mark a space 8 inches wider than the frame intended to place on it, drive a stout stake into each corner, and then commence placing the material in, but not in layers as usually done, or trampled down, but commence at one end, well shaking the dung out, and work to the other, beating it down as the work proceeds, especially the edges, with the back of the fork, when it will bind well together. About 4 feet 6 inches to 5 feet is a good height. After the bed is made the frame must be placed on. Place two smooth planks across the bed about 2 feet from each end; then with a man at each end, or corner as required, lift the frame up, place the back of the frame on the end of each plank, when you can easily run it on the bed without anyone trampling on it. Leave the lights open about an inch to allow rank steam to escape.

If the frame is required for Cucumbers or Melons place turves grass side down over the bed; but if for propagating, a layer of cocoa-nut fibre or ashes will be the best. The lights should be open slightly night and day at the back of the frame; and when the mats

are placed on at night do not let them hang over the opening, except in the case of cold winds from the quarter they open towards. When the cuttings, or whatever there may be in the frame, require sprinkling or watering, which is generally on fine days, do it early in the afternoon. The water used should be of the same temperature as the bottom heat. Close the frame when the cuttings have been sprinkled, opening it slightly two hours after. When the bottom heat is declining a good lining of fresh material must be placed around the frame, packing it well around the sides. When the frame requires attending to, do not tread on the lining, but have a pair of steps at the back of the frame. Hotbeds are very useful for forcing Asparagus, Mint, Tarragon, Sweet Basil, and Tomatoes.—A. YOUNG.

EARLY PEAS.

THE useful letter from Mr. Barker (page 25) anent the growing of early Peas recalled to my memory a method I saw adopted by Mr. Melville at Glenlee. In numbers of instances Peas are sown and grown to a certain stage under glass, and then after a gradual hardening-off planted outside in borders. Different men have different methods; some grow them in pots, some in ordinary boxes, and others again use turves. The plan adopted by Mr. Melville differs from these, and is, I think, superior to any of them. He uses boxes or troughs formed something after this style. A number of small blocks of wood are obtained and a notch cut out of each thus— In this notch two thin boards, corresponding in length to the breadth of the border where the Peas are to be grown, are placed, and the box is complete. After they have been filled with soil and the Peas sown two nails should be driven into each block and a string passed over the top of the box. This keeps the blocks in their proper place, and enables the boxes to be carried with convenience whenever it is necessary to shift them. When planting time arrives the simplicity of this method will be further seen. Supposing the ground to be thoroughly prepared beforehand, a notch corresponding in size to the box is formed, care being taken that it is quite level. Two men can easily transfer the Peas to their final position. The strings holding the blocks must then be cut away, the boards being held together with the hands till they are placed in the notch prepared for them. The boards may now be taken away and a little soil passed round the sides of the Peas, and the row is complete. It is advisable to draw a little earth round them and stake them at once, as this shelters the young plants and gives them a better chance to succeed.—CALEDONIAN.

ADVANTAGE should be taken of the present unusually mild and open weather for the time of year to make good sowings of the following excellent varieties of Peas in well-prepared ground, in rows (the number of which must be determined in accordance with the demand for the produce in each individual establishment) running north and south, and 8 or 10 feet apart, the intervening space being planted with three or four rows of Cauliflowers later on—viz., William I., Laxton's Supreme, Carter's Telephone, and Ne Plus Ultra. The above Peas, which should be sown in the order in which their names appear, will make a good succession to the produce of the early varieties, of which we shall speak presently, and yield a daily supply of well-filled pods from the end of June for a month or five weeks hence; the supply being continued thence till late in the autumn by the produce of later sowings of the same or kindred varieties made at intervals of a fortnight up to the second week in June.

Early Peas.—The reason why I have given precedence in this paper to varieties and sowings of the same, from which Peas will be only ready for gathering by the time the supply from those of which I now write has been nearly exhausted, is because the seeds of the latter, owing to the special treatment to which they are or will be subject, do not require to be sown so early by a week or two, and then though the ground should happen to be in the firm grip of "Jack Frost" the fact need not in the least interfere with this procedure—viz., the sowing of early Peas in pots. For this purpose use 3-inch pots three parts filled with light soil, into which about eight or ten peas should be placed, and then covered with some of the same soil. The pots should then be removed to an early vinery or Peach house, and thence when the Peas have made a couple of inches of growth to a cooler and more airy house, where they can be gradually hardened off preparatory to being finally planted out in sunny borders later on. However, the method of procedure to be then followed will be communicated in another paper. For this crop we shall sow, and here recommend to be sown, Laxton's Earliest of All, Day's Early Sunrise, William I., Suttons' Ringleader, and Emerald Gem, all excellent early varieties, and from which peas may be expected to be gathered the third week in May, should we be favoured with ordinary spring weather.—H. W. W.

TROPEOLUM TUBEROSUM.

HAVING met with great success in the cultivation of this splendid climber, I thought a few hints respecting its requirements would be of service to many who have not given it a trial. I purchased a tuber of it in January of last year and at once potted it and brought it slowly on in a cool greenhouse, and when the weather was sufficiently warm planted it out against a wall having a south aspect, where it soon made rapid progress and was admired by all who saw it, not only for its pretty foliage, but its mass of blooms.

Sandy loam is the best compost for it, and during growth plenty of rain water at the roots; manure in any shape is not needed. This single

tuber covered a space of 20 feet, and when its beauty was past I lifted the root carefully, and found I had a cluster of tubers numbering thirty-seven which had multiplied from the single one which I had planted; some of them larger than the one I cultivated in the first place.

The greater number of failures, I believe, are caused through too much feeding with manure, which causes these plants to produce foliage in quantity in place of blooms.—J. D. M., *Essex*.

GARDENERS EMIGRATING.

I SHALL be much obliged if any reader of the Journal can give me any information relative to the colony of New South Wales as regards gardening. I see advertisements in the newspapers for young men to go out as emigrants, Vine-dressers being specially mentioned. As I intend going out there soon, I should like to know the Vine-dresser's duties and average rate of wages. I have had a good practical experience in fruit-growing indoor and out, having acted as foreman at one of the largest Grape-growing establishments in the kingdom. Any information will be thankfully received by—A FOUR-YEARS READER.

I AM to emigrate to New South Wales, Australia, soon. Can any of your numerous readers inform me of any good firm that I could apply to in pursuit of a situation? near Sydney preferred. Also any reliable firm near Melbourne (Victoria)? Any information will be thankfully received by—J. S., *Co. Down*.

CULTURE OF USEFUL PLANTS.

Primulas.—Sow *Primula* seed in March in pans, place them in a cool house and cover them with glass, which should be removed when the seeds have germinated. When large enough prick the seedlings off into pans in a finely sifted compost, and transfer them to a warm frame, giving them a position near to the glass; a Melon or Cucumber bed just started being suitable. When well rooted transfer them into 60-size pots. Soil, two parts loam, one of peat, half finely sifted well-decayed manure, half sand, and a little rough grit. A warm bed should have been specially prepared for them, which would rise to about 70°, and with a covering of 6 inches of soil to prevent the injurious gases from the dung rising into the frame, placing the pots close to the glass. Repot the plants when necessary, and by the last shift the bed ought to be renewed and increased, so as to give plenty of room, and a little fresh mixed with it is all that is required to raise the heat. Never have the soil too moist, or, to use the general expression, keep on the dry side. In the beginning of October transfer the plants to a good dry and light shelf in a greenhouse or cool vinery, water very sparingly and with weak liquid manure. To keep up a supply seed ought to be sown at different periods.

Bouvardias.—Plants of these that have ceased blooming should be cut down and transferred to a light and warm house to commence growth. When ready, which will be the end of January or beginning of February, cuttings should be taken if possible with heel of the old wood and inserted in 48-size pots, a mixture of finely sifted peat and charcoal being employed. Place the pots in a frame in a propagating house, and when the cuttings are rooted transfer them singly into 60-size pots, and place them on a shelf near the glass in the same or a similar house. In June place them in a frame or cool house where they can be syringed twice a day. Shift them when they are sufficiently advanced into a compost of loam, peat, charcoal, cow dung, and sand. Great attention must be paid to watering and pinching the shoots to make good plants. Fumigate if aphides are troublesome. In October remove them to a warm house and give supplies of weak liquid manure.

Marantas.—February is the month for potting these, for which use a compost of three parts peat and part loam and sand. Grow them in a good heat, placing, if convenient, in a brisk bottom heat. Great care should be taken in crocking the pots, as they require a great quantity of water, and it is necessary it should not remain stagnant. Syringe twice a day, and in case they are not plunged stand them in pans kept full of water during summer. Much less is required in winter.—A FOREMAN.

SPECIAL SOCIETIES.

"A FEW old fogies are fond of Auriculas, Carnations, &c.—so very fond of them that they go to the trouble to promote special exhibitions of them, thinking that a certain portion of the public would be pleased to see them. The public, or at least a portion of it, see and applaud. The fogies are satisfied, and do not trouble their heads about 'national utility.'"

The above was written last week by Mr. James Douglas, and I must say I have never before seen such an honest confession, as far as it goes, from a florist. There can be no doubt about the "old fogey" aspect of the question, and a member of that fraternity is qualified to speak on the subject. Mr. Douglas has not, however, told the whole truth about special societies. One main reason why the "old fogies" encourage these is an eye to business, and the sale of their seeds and plants. The successful Auricula growers are probably about one in a hundred among gardeners and amateurs, but the greater the number that can be prevailed upon, by means of shows, &c., to embark in pot-Auricula culture the better for the "old fogies" and the worse for the garden culture of a pretty flower that was intended for our flower borders and rockeries, and not for the frame or glass house of "old fogies," who truly "do not trouble their heads about national utility," and I therefore conclude that the title, "National Auricula Society," which they have adopted lately, is a delusion.

Mr. James Douglas is in the secret counsels of the fraternity, and ought to know, and be thanked for his frankness on that point. It is too good to pretend, after such an admission, that Auricula shows are "promoted" with the object of "pleasing the public" or even a "certain portion of it." Your special florist is simply a person with more than usually restricted sympathies and views on flower culture, who "does not trouble his head about national utility." A special society to improve the Potato, for example, or some other subject of importance, one can understand; but one like the Auricula Society, which it is confessed has no useful purpose to serve, and which serves none, is not worth encouraging or defending, and certainly not worth making so much noise about.—BORDER FLOWER.

WHEN we begin to answer questions on any subject connected with these special societies it seems that there is no end to them. Your correspondent, "Auricula," now wishes to know how the large growers can be prevented from competing against the small ones. I really cannot say. "Exhibitors in A and B cannot compete in C and D," but if a large grower chooses to compete in C and D there is no rule to prevent him. I do not think it is often done, and I fancy even in the case mentioned by "D., Deal," that gentleman made a mistake. The grower referred to was the late Mr. Thos. Woodhead, and he was not the man to take advantage of a small grower. The only way is for the Press to notice any flagrant instances of it. A man who had a surplus stock of 1000 plants ought not to have competed in C and D when the choice was given him of two out of the four classes, and I do not think it was done. At one time all the classes were open, but at that time also there were few exhibitors. Now that the alteration has been made it must be left to the honour of the exhibitors. It would scarcely do to define the number of plants an amateur should grow.—J. DOUGLAS.

SOME friends of the Societies under discussion will be inclined to regret that Mr. Douglas has undertaken the championship of their cause, for while practically admitting their defects he has represented them in a far worse light than I should have thought of doing. If the societies are confined to "a few old fogies" who do not "trouble their heads about national utility," what claims have they to the title they have adopted, to the publicity that is accorded them in the press, and to the funds they are so assiduous in collecting? If they had chosen to follow their hobbies in a private manner, none could have objected; but they have courted popularity, and "national" institutions must be necessarily exposed to the criticism of a utilitarian age. When funds are being expended for any presumably "national" purpose, we have a right to know whether such funds are being applied to the best possible advantage, and in the case of the special societies I consider this is not done.

As to the number of prizetakers at these shows, there is no question whatever that the projectors and those who appear to take the greatest interest in the matter are really those who are most successful, and therefore their testimony cannot be regarded as impartial. For instance, at the National Auricula Society's Southern Show last year I find, from the reports given in the gardening papers, that there were thirteen prizetakers and nearly 100 prizes offered, while at the Carnation and Picotee Show there were only eleven prizetakers. At the latter, too, in the classes for single specimen blooms, sixty-five prizes were offered and divided amongst four exhibitors, one of whom gained thirty-three of the total—a great victory undoubtedly, and one that should be "proclaimed from Land's End to John o'Groat's," but to the uninitiated it savours much of monopoly. Cannot this be remedied?—X.

As an admirer of the Auricula, but not an exhibitor, I do not exactly see why those who choose to contribute to a special society should not do so if it affords them pleasure. Auricula shows are very beautiful; indeed it is questionable if there is so much real beauty in a similarly small space as in a collection of these charming alpine plants. The Auricula exhibitions in London have enormously improved since the present Society was established, and this fact presumably satisfies the subscribers, whether they win prizes or not, or, in fact, whether they compete or not. It is not claimed, I think, that the Society in question is perfect. Most organisations of this nature are open to improvement. The question is, In which way can the National Auricula Society be improved? What rule can be altered or change effected to widen its popularity? It is to this question that your critical correspondents might usefully direct their attention, and at present I fail to see that anything has been suggested that will render the shows more generally satisfactory.—NON-EXHIBITOR.

VINE ECONOMY.

MR. TAYLOR'S questions (page 37) show what a vague and uncertain meaning he attaches to the term "Economy of the Vine." According to his statements it might be something in the ground and not in the Vine at all. I decline to recognise his unintelligible and unscientific interpretation. I understood him to use the term in the same and proper sense that physicians employ the words "economy of the human body or system"—referring to the circulation of the blood, assimilation, growth, &c., or in other words functional development. The economy of the Vine is like that of other plants—especially those in its own section—in these respects. It lives on the same food, thrives in the same soil, feeds in the same way, breathes the same air, has a similar structure and system to other plants, and finally dies just in the same way. Mr. Taylor's notions of analogy are indicated by his comparison of the Vine with Geraniums and Roses, &c., and his knowledge of his subject is

shown by his question, "Will the Gooseberry root grow wrong end up?" Clearly he does not yet know that it will do so, and many other plants besides. I thought the inverted Gooseberry cutting was a familiar example with most people. For a more intimate acquaintance with this subject I would refer Mr. Taylor to modern works on plant-structure and physiology.

I expected an answer from "Credo" about elaborated sap, and I here beg to submit that elaborated sap *does not* return to the leaves, and that such a thing has never been proved notwithstanding the confident "undoubtedly" of "Credo."—NON-BELIEVER.



THE annual meeting of the ROYAL HORTICULTURAL SOCIETY will be held at Kensington on February the 12th. The gentlemen recommended by the Council as officers for the year are as follows:—President, the Right Hon. Lord Aberdare; Treasurer, William Haughton; Secretary, Major F. Mason; Auditors, John Lee and James F. West. To fill the vacancies in the Council caused by the retirement of Sir Chas. W. Strickland, Bart., James McIntosh, and Henry Webb, the Fellows recommended are the Right Hon. Viscount Enfield, Professor Michael Foster, F.R.S., and Frederick Du Cane Godman, F.R.S.

— THE INTERNATIONAL POTATO EXHIBITION will again have the advantage of facilities, generously granted by the Royal Horticultural Society, for the trial, culture, and cooking of new varieties submitted for certificates of merit. Persons intending to compete are requested to send, carriage paid, not more than eight varieties, six fair samples of each, to Mr. A. F. Barron, Horticultural Gardens, Chiswick, near London. At the same time a communication on the subject should be made to the Honorary Secretary of the International Potato Exhibition, 23, Upper Thames Street, London, E.C.

— THE DUNDEE INTERNATIONAL HORTICULTURAL EXHIBITION will be held in the Drill Hall and grounds of that town on the 11th, 12th, and 13th of September, 1884, when upwards of £1000 will be offered in prizes. Very liberal provision is made for exhibits of fruits, seventy-one classes being devoted to them. About 120 classes are appropriated to plants and cut flowers, and nearly thirty to vegetables. In all the leading classes the prizes are liberal, the most important being that for sixteen sorts of fruits—namely, £20, £15, and £10; while for a collection of twelve sorts, £15, £10, and £5; and in a third class for eight sorts, £10, £6, and £4 are offered, these being open to all.

— A CORRESPONDENT suggests that the balance in the hands of the PELARGONIUM SOCIETY be given to the Gardeners' Royal Benevolent Institution on the ground that "if added to the funds of the Auricula and Carnation and Picotee Societies it would practically be placed in the pockets of some half-dozen individuals."

— "P." writes respecting DELPHINIUM NUDICAULE as follows:—"In 1882 I saved seed of the above and sowed it in heat in the spring of 1883, growing the seedlings and planting them out during the summer. They gave us a beautiful show of flowers in the autumn, and are still in bloom. I intend to place them under glass and plant them out in the spring. They were so beautiful that I almost feel inclined to employ them for bedding-out this year. Have any of your readers bedded them out, and with what results?"

— THE same correspondent also, referring to ANOMATHECA CRUENTA, remarks:—"I have been agreeably surprised by plants of the above from seed sown last spring without any extra care. The seed was sown in pots in ordinary soil kept in a cool pit, and they have given us a fine display of lovely flowers. They are now perfecting seed, so that we may have a display of them in autumn treated as annuals."

— MESSRS. PAUL & SON, Cheshunt, send us examples of REAL AUTUMN ROSES in the form of a few tops of the good old Bourbon Rose Souvenir de la Malmaison, and the new H.P. Grandeur of Cheshunt, off two rows they are pruning for very early flowering. They seem to illustrate the perpetual habit it is so desirable to obtain in new Roses, every shoot terminating in a flower bud.

— MR. T. S. WARE, Hale Farm Nursery, Tottenham, sends us a few flowers of the DOUBLE WHITE NEAPOLITAN VIOLET, COMTE BRAZZI, gathered from plants in the open air, to show the size, purity, and fragrance of the variety. We have previously referred to this beautiful Violet in commendatory terms, and these examples fully confirm the opinion we had formed respecting it. They are very fine, of good substance, with long stalks, and possess a most powerful and lasting odour.

— AT the special sale of ORCHIDS at Mr. Stevens' rooms, King Street, Covent Garden, last week some good plants of *Odontoglossums*, *Cattleyas*, and *Lælias* were shown in flower, and formed quite a pretty display. Some of the principal prices realised were the following:—*Lycaste Skinneri alba*, twelve guineas; *Lælia Crawshayiana*, four guineas; *Phalænopsis amabilis Dayana*, six guineas; *Cattleya Trianae*, fine variety, six guineas; *Odontoglossum Edwardi*, £7; *O. Andersonianum*, nine guineas; *Cypripedium villosum*, nine guineas; *Cœlogyne cristata*, six and a half guineas; and *Lælia autumnalis*, six and a half guineas.

— AN American contemporary states that at Craig, in Braidentown, are two of the LARGEST GUAVA TREES IN FLORIDA. They are 30 inches in circumference and 30 feet in height. From the fruit of these two trees, two years ago, 200 lbs. of jelly were manufactured, besides supplying the neighbours round about with fruit to their heart's content.

— REFERRING to the request for a good WHITE CARNATION FOR WINTER, a correspondent observes:—"I think if 'X.' gives The Queen a trial it may suit him. Although it flowers during the summer, if propagated now it would probably be a good winter bloomer. It was pointed out to me by a good authority as a great acquisition, and is very pure and free."

— ON Monday evening last the annual meeting of THE ROCHDALE AURICULA SOCIETY was held in the Lyceum, Rochdale, when the Secretary presented his report and statement of accounts. The Show on the 2nd of May was a decided success from the florists' point of view, and although the financial success was not so apparent, yet the statement showed that the balance against the Society was under £1. C. M. Roys, Esq., was re-elected President; Saml. Barlow, Esq., Stakehill, Wm. Botton, Esq., Warrington, J. H. Lancashire, Esq., Deeplish, and Thos. Watson, Esq., Horselans, were appointed Vice-Presidents; the veteran, Mr. James Cheetham, was appointed Chairman of the Committee, and Mr. Brodie, Mitchel Street, Rochdale, was re-elected Honorary Secretary. The date of the Exhibition for 1884 was fixed for the 3rd of May, and a liberal schedule of prizes was arranged.

— ARRANGEMENTS have been made for a series of six HORTICULTURAL EXHIBITIONS AT THE CRYSTAL PALACE during the present year, a total amount of £1400 being offered in prizes. The season will commence with a Show of Spring Flowers on April 4th and 5th, to be followed by a Summer Show on May 23rd and 24th, a Rose Show on July 5th, Dahlia Show September 5th and 6th, Autumn Fruit and Potato Show October 7th to 11th, and Chrysanthemum Show November 14th and 15th. The exhibitions will be arranged and superintended by Mr. W. G. Head, and the liberal prizes to be offered may be expected to result in some handsome and successful displays.

— MR. J. E. WAITING, Grange-over-Sands, writing upon FLOWERS IN WINTER remarks that "herbaceous plants are all starting. Polyanthus and Primroses have been flowering since October, Snowdrops during the past fortnight. Laurustinus has been one mass of bloom for two months. Gloire de Dijon Roses are still covered with buds like those enclosed; the Rosemary is showing flowers, and the yellow Jessamine covered with blooms. Pear-tree flowers are opening, and the mild sunny days we have had remind us of the coming summer. Much injury is sure to follow such weather sooner or later. My border varieties of Auriculas have all finished blooming weeks ago." With this note were sent flowers of Polyanthus, Primroses, Wallflowers, Laurustinus, *Jasminum nudiflorum*, Rose buds, Rosemary, and twigs of fruit trees with much-advanced buds.

— RELATIVE TO FRAGRANT ROSES a Yorkshire correspondent observes:—"I see amongst the most fragrant of the Hybrid Perpetual Roses Duke of Edinburgh, which is scentless, and John Hopper, which is very poorly scented, sometimes not at all. Most of the others named

on page 540 last volume are richly scented, but may I call attention to the Duchess of Edinburgh, which is included? Surely this Rose has gone out of cultivation; if not, it ought to be discarded. Mr. Simons on page 4 mentions in his list of fragrant Roses Mabel Morrison. Well, if this Rose is fragrant, then all Roses are." Have soils and situation any influence in this matter? With us John Hopper is decidedly fragrant, Duke of Edinburgh only slightly so, but a very good grower finds it admired for its perfume as well as its colour. Mabel Morrison we have not found to be fragrant, yet others may have done so. How, then, are we to account for its variability?

— A BOOK of great interest to all dwellers in the country has been produced by Mr. Harrison Weir, whose love of Nature and skilful pencil are well known. It is called "EVERY DAY IN THE COUNTRY," with 400 illustrations, and is in the form of what is called "a birthday book," and on every day in the year some natural objects are referred to, accompanied by a pretty woodcut illustration. Let us take as an example this 24th day of January, and we shall find these records—"Chaffinch sings," "Spring Crocus flowers," "Robin builds," "Skylarks feed on grain, insects, worms," and this is illustrated by the figure of the chaffinch. So on throughout the whole year, and consequently there are 365 objects illustrated with original drawings from Mr. Weir's prolific pencil. Besides these there are six pretty chromo-lithographic illustrations. We highly commend this to the heads of families as an incentive to the young to study natural history.

— THE ANNUAL MEETING OF THE ESSEX FIELD CLUB for the election of new members of Council and officers will be held on January 26th, 1884. The following members agreed, at the meeting on December 15th, 1883, to retire from the Council—Mr. H. J. Barnes, Mr. J. T. Carrington, Mr. R. Meldola, and Rev. T. W. Peile. To fill the seats so rendered vacant the following are proposed for election—Mr. H. J. Barnes, Mr. F. C. Gould, Mr. D. Houston, F.L.S., F.R.M.S., and Mr. R. Meldola, F.C.S., F.R.A.S. The following members are recommended by the Council for election as officers for 1884:—President, Prof. G. S. Boulger, F.L.S., F.G.S., F.R.M.S., &c.; Treasurer, Andrew Johnston, J.P., D.L. (late High Sheriff of Essex); Secretary, William Cole; Assistant Secretary, Benjamin G. Cole; and Librarian, Alfred Lockyer.

— MR. SHIRLEY HIBBERD'S "GARDEN ORACLE FOR 1884" is now issued, and contains, in addition to the usual calendrical matter, lists of new and select plants, fruits, and vegetables, with much information respecting Potatoes, including classification, synonyms, and a descriptive catalogue of 450 varieties, a selection of the best Apples at the Chiswick Congress, a useful summary of the Agricultural Holdings Act for 1883, and a variety of instructive matter.

— "M. S." writes:—"Since my last note regarding the cultivation and manufacture of RHEA OR CHINESE GRASS, a meeting has been held in the St. Michael's Hall, George Yard, Lombard Street, having for its purpose a project for extending its cultivation in the territory of the Maharajah of Johore. The meeting was convened by Messrs. G. H. Brogden & Co., and presided over by Mr. Needham Crowe. It appears that the formation of a company was contemplated for the purpose of acquiring 21,000 acres of land for 999 years from the Maharajah, part of it having already been chosen with the view of disposing of it to enterprising cultivators at the rate of £1 per acre, and the granting of licences for the use of two processes—one the Favier process, by which the stems are operated upon by means of boilers at the rate of 4000 in twenty minutes; the other the Frémz-Urbain process, taking the ribbons thus produced and turning them out ready for the spinner. It was stated that the cost of the prepared material at present was practically—allowing for losses—£100 per ton, and that by the above processes the selling price may be reduced to £60, at which price it would compete fairly with flax. It would be well if farmers in this country also were to give it a fair trial. I am confident it would pay far better than many of the crops grown by them at present, and with the advantage of requiring less attention and also less expense."

— A CORRESPONDENT writes as follows on the EARLINESS OF VEGETATION IN COUNTY MEATH:—"Plants in flower outdoors are Wallflowers, Arabis alba, Pansies very bright, *Pyrus japonica*, Polyanthus and Primroses as free as April, including the double yellow, white, and purple varieties. In the wood may be seen the Germander

Speedwell and common Buttercups in full flower. Rhododendrons are also showing their colour; we are lifting some for pots, which will soon give us a useful display. The Cabbages remind me much of the London market gardens in May; some old stems running fast to flower which were expected to afford useful produce in March and April."

— "OBSERVER, *Yorkshire*," sends the following list of WINTER FLOWERS. "We have had extremely mild weather during the past few weeks and we have the undermentioned plants in flower. *Limnanthes Douglasii*, *Midlothian Stocks*, the *Filbert*, *Schizostylis coccinea*, *Lamium maculatum*, *Saponaria calabrica*, *Scabiosa caucasica*, *Bellis perennis*, *Ranunculus repens*, *Roses*, various *Perpetuals*, *Lychnis dioica alba*, *Ranunculus aeris*, *Alyssum maritimum*, *Veronica syriaca*, *Doronicum caucasicum*, *Erysimum pulchellum*, *Iberis TomThumb*, *Myosotis dissitiflora*, *Daphne Mezereum*, *Jasminum nudiflorum*, *Oxalis floribunda*, *Calendula officinalis*, *Rosa sempervirens*, *Lamium purpureum*, *Fragaria vesca*, *Borago officinalis*, *Garrya elliptica*, *Pyrethrum Golden Feather*, *Hypericum calycinum*, *Eranthis hyemalis*, *Viola odorata* The Czar and others. *Forsythia viridissima*, *Caltha palustris plena*, *Lunaria biennis*, *Alyssum variegatum*, *Viola tricolor* various, *Aubrietia deltoidea*, *Chrysanthemum segetum*, *Rose Gloire de Dijon*, *Chinese Chrysanthemums*, *Erica carnea*, one of the best plants we possess for the winter; *Cheiranthus Cheiri*, *Rosa Laurenciana*, fine for beds and edging large beds; *Hepatica triloba alba*, *Delphinium nudicaule*, *Hesperis matronalis*, *Physalis Alkekengi* in fruit, *Tritoma Uvaria*, fine owing to the absence of frost. Our *Hellebores* are remarkably beautiful this season, in different shades of colour, and the foliage bright; and last, but not least, *Anemone stellata*."

A WINTER FRUIT GARDEN.

THERE is no fruit tree that approaches the Orange; the beauty and profusion of its flowers, the sunny golden fruit set off and relieved by the splendid glossy evergreen foliage combine to place the Orange in the premier rank, a peer amongst its peers. With these qualities it is not a little singular that the dismal old orangery, crowded with straggling bitter fruit should have been considered sufficient for its cultivation, and that in rich England it has not been established as a winter fruit tree as indispensable to a well-kept garden as the pinery or vinery. My house has about fifty trees in it studded with golden fruit, and has been a special pleasure since the beginning of November, the season when the fruit assumed the rich, sunny, golden hue peculiar to healthy Oranges. The temperature has ranged from 50° to 60°, not much above the outside air, the ventilators being open from nine in the morning till four in the afternoon, causing no discomfort from heat in the house and no fear of catching cold on quitting.

All variety is charming, and though Oranges resemble each other very much there is a considerable difference. I have the Maltese Blood and some twenty sorts of St. Michael's, all possessing some distinctive peculiarity, notably the Silver, the Prata, and the White. The Tangerine grows as easily as a Medlar, and fruits as generously.

The Bergamot Lemon is large and delicious in flavour, and the tiny Bijou is aromatic and pungent enough for a giant, producing fruit of a pale straw plentiful as leaves, the whole tree, leaves and fruit, being redolent of perfume enough to make a Scotchman deify it.

Shaddocks, Limes, and Citrons require no greater heat than Oranges, and flourish amicably in the same house; useless for use, but adding an additional interest to the house.

There is no prettier dish for the dessert than the Orange gathered with a stalk of leaves; the fruit is fresh, fragrant, deliciously juicy, filling a room with its perfume. A well-arranged Orange house, large and lofty, would probably pay its expenses and leave some profit, no expensive forcing being required; it would be unequalled as a winter promenade, and I recommend the idea to those who wish to promote the attractions of our winter seaside resorts.—T. F. RIVERS, *Sawbridgeworth*.

ELECTION OF CARNATIONS AND PICOTEES.

THE BEST SIX IN EACH CLASS.

HAVING had numerous inquiries in reference to this matter during the past year, and not being able to answer them to my own satisfaction, I communicated with several of my friends and brother florists, as under: Mr. J. Booth, Failsworth, Manchester; Mr. Robert Lord, Todmorden; Mr. J. Douglas, Great Gearies, Essex; Mr. Charles Turner, Royal Nurseries, Slough; Mr. S. Brown, Birmingham; Mr. Ben Simonite, Sheffield; Mr. G. Geggie, Bury, Lancashire; Mr. S. Hartley, Headingley, Leeds;

Mr. Edward Adams, Swalwell, Gateshead; Mr. William Mellor, Wakefield; Mr. Thomas Maddock, Lofthouse Hall, Wakefield; Mr. Thomas Bower, Bradford; and Richard Gorton, Esq., Eccles, near Manchester; to obtain their selection of the best varieties. Lastly, my own selection is added, making fourteen lists, from which I have compiled that which follows, giving the number of votes obtained by each variety. My esteemed friend Mr. Dodwell was unable to furnish me with a list, as he is suffering from rheumatism, for which I was heartily sorry and trust that he will soon recover. A list like this has many surprises, and no doubt many will be disappointed, as I have been myself whilst compiling this election. I propose, in addition to the present list, to furnish each individual's selection of the best six in each class. In nearly all cases the full six were given, with one exception only (R. Gorton, Esq.), who says he thinks that four of each is a good representative list. This will make a slight difference in the quantity of votes, but is not of moment in the quantities given.

CARNATIONS.

Scarlet Bizarres.

Votes.		Votes.	
Admiral Curzon (Easom)	14	John Hines (Dodwell)	3
Fred (Dodwell)	10	Sir J. Paxton (Ely)	2
George (Dodwell)	10	Dreadnought (Daniels)	2
Robert Lord (Dodwell)	8	William Spoor (Adam)	1
Edward Adams (Dodwell)	8	Phillip Thomas (Dodwell)	1
Arthur Medhurst (Dodwell)	6	True Briton (Hepworth)	1
Mercury (Hextall)	6	James McIntosh (Dodwell)	1
Mars (Hextall)	4	Master Stanley (Dodwell)	1
Alfred Hudson (Dodwell)	3		

Crimson Bizarres.

Master Fred (Hewitt)	12	Rifleman (Wood)	5
J. D. Hextall (Simonite)	10	Jenny Lind (Puxley)	4
Harrison Weir (Dodwell)	9	Graceless Tom (Wood)	3
Thomas Moore (Dodwell)	7	John Harland (Adams)	1
Eccentric Jack (Ely)	7	The Lamplighter (Wood)	1
John Simonite (Simonite)	7	Millie (Dodwell)	1
Lord Milton (Ely)	6	Lord Raglan (Bower)	1
E. S. Dodwell (Hewitt)	6	Warrior (Slater)	1

Pink and Purple Bizarres.

Sarah Payne (Ward)	14	Squire Dodwell (Dodwell)	2
Falconbridge (May)	11	William Murray (Adams)	2
Squire Llewellyn (Dodwell)	8	H. K. Mayer (Dodwell)	2
James Taylor (Gibbons)	8	Mrs. Anstiss (Dodwell)	2
William Skirving (Gorton)	6	Shirley Hibberd (Dodwell)	1
Unexpected (Turner)	6	Purity (Wood)	1
Squire Penson (Dodwell)	4	Rev. F. Tynons (Dodwell)	1
Mrs. Barlow (Dodwell)	3	T. S. Ware (Dodwell)	1
Stanley Hudson (Dodwell)	3	Mrs. Gorton (Simonite)	1

Purple Flakes.

James Douglas (Simonite)	14	Earl of Wilton (Holland)	4
Dr. Foster (Foster)	13	Lord Derby (Fletcher)	3
Squire Meynell (Brabbin)	10	President (Addis)	2
Mayor of Nottingham (Taylor)	7	Esther (Dodwell)	1
Juno (Baildon)	7	Sporting Lass (Sport from Sarah Payne)	1
Squire Whitbourne (Dodwell)	6	Blue Bell (Hartley)	1
Florence Nightingale (Sealey)	6	Premier (Millwood)	1
Earl of Stamford (Addis)	5	Squire Trow (Jackson)	1

Scarlet Flakes.

Clipper (Fletcher)	13	Mr. Battersby (Gibbons)	1
Sportsman (Hedderley)	11	Jupiter (Abercrombie)	1
John Ball (Dodwell)	10	Lady Curzon (Brown)	1
Dan Godfrey (Holmes)	9	Thomas Woodhead (Rudd)	1
Annihilator (Jackson)	8	Figaro (Abercrombie)	1
Thomas Tones (Dodwell)	5	Matador (Abercrombie)	1
James Cheetham (Chadwick)	5	Flirt (Abercrombie)	1
Henry Cannell (Dodwell)	4	Henry Matthews (Dodwell)	1
William Mellor (Dodwell)	3	A. Holmes (Dodwell)	1
John Bayley (Dodwell)	2	Ivanhoe (Dodwell)	1
Scarlet Keet (Dodwell)	2		

Rose Flakes.

John Keet (Whitehead)	13	Lovely Ann (Ely)	2
Sybil (Holmes)	12	James Carter (Adams)	2
James Merryweather (Wood)	9	Maid of Athens (Hepworth)	1
Mrs. Dodwell (Lord)	7	Mrs. Tones (Dodwell)	1
Jessica (Turner)	7	Mrs. Green (Taylor)	1
Rob Roy (Gorton)	5	George Henry (Lumb)	1
Tim Bobbin (Gorton)	4	Miss Erskine (Wemyss)	1
Electric Light (Lumb)	4	Apollo (Fletcher)	1
Christigala (Whittaker)	3	Flora's Garland	1
Mrs. Matthews (Dodwell)	3		

PICOTEES.

Heavy Red.

John Smith (Bower)	14	Mrs. Fuller (Fellows)	2
J. B. Bryant (Ingram)	12	Winifred Esther (Dodwell)	2
Brunette (Kirtland)	9	Countess of Wilton	1
Master Norman (Norman)	6	Emmeline (Addis)	1
Mrs. Dodwell (Turner)	5	Henry (Matthews)	1
Dr. Epps (Smith)	5	John Bull	1
Princess of Wales (Turner)	5	Mrs. Keynes (Fellows)	1
Morna (Fellows)	3	Exhibition (Elkington)	1
Dr. Abercrombie (Fellows)	3	Miss Small	1
Picturata (Fellows)	4	Queen of Summer (Fellows)	1
Lord Valentia (Kirtland)	3		

Light Red.

Thomas William (Flowdy)	14	Mrs. Hornby (Turner)	2
Violet Douglas (Simonite)	12	William Summers	2
Mrs. Bower (Bower)	11	Emily (Addis)	2
Elsie Grace (Dodwell)	10	Toxophilite (Payne)	1
Mrs. Gorton (Simonite)	8	Winifred Esther (Dodwell)	1
Clara (Bower)	5	Princess Mary (Fellows)	1
Sarah Elizabeth (Rudd)	4	Thomas Jivens (Flowdy)	1
Rev. F. D. Horner (Lord)	3	Arbitration (Jackson)	1

Heavy Purple.

Votes.		Votes.	
Zerlina (Lord)..... 14	Picco (Jackson)..... 2		
Mrs. A. Chancellor (Turner)..... 12	Norfolk Beauty (Fellows)..... 1		
Alliance (Fellows)..... 11	Fanny (Lord)..... 1		
Tinnie (Dodwell)..... 9	Indispensable (Addis)..... 1		
Muriel (Hewitt)..... 8	Robin Hood..... 1		
Mrs. Summers (Simonite)..... 6	Baroness Burdett Coutts (Turner)..... 1		
Mrs. Niven (Niven)..... 6	Claudia (Fellows)..... 1		
Lizzie Tomes (Dodwell)..... 5	Medina (Fellows)..... 1		
Isabella (Matthews)..... 2	Princess Dagmar (Button)..... 1		

Light Purple.

Ann Lord (Lord)..... 12	Baroness Burdett Coutts (Payne)..... 3
Clara Penson (Willmer)..... 12	Alice (Lord)..... 2
Her Majesty (Addis)..... 12	Tinnie (Dodwell)..... 1
Minnie (Lord)..... 11	Jessie (Turner)..... 1
Mary (Simonite)..... 10	Evelyn (Hewitt)..... 1
Nymph (Lord)..... 7	Mrs. Tutton (Payne)..... 1
Master Nichols (Schofield)..... 5	

Heavy Rose and Scarlet.

Mrs. Payne (Fellows)..... 11	Lonisa (Addis)..... 3
Miss Horner (Lord)..... 11	Mrs. Lord (Lord)..... 3
Fanny Hellen (Niven)..... 9	Constance Heron (Fellows)..... 3
Edith Dombain (Turner)..... 9	Esther Minnie (Dodwell)..... 2
Royal Visit (Abercrombie)..... 8	Miss Lee (Lord)..... 2
Mrs. Rudd (Rudd)..... 6	Charles Williams (Norman)..... 1
Lady Holmesdale (Schofield)..... 5	Juliana (Turner)..... 1
Lady Louisa (Abercrombie)..... 4	

Light Rose or Scarlet.

Mrs. Allcroft (Turner)..... 13	Morning Star (Norman)..... 3
Miss Wood (Wood)..... 11	Estelle (Fellows)..... 2
Nellie (Rudd)..... 5	Lady Carrington (Abercrombie)..... 2
Miss Gorton (Dodwell)..... 4	Northern Star (Wood)..... 1
Bertha (Morris)..... 4	Miss Flowdy (Flowdy)..... 1
Mrs. Nicholl (Simonite)..... 4	Empress Eugenie (Kirtland)..... 1
Evelyn (Fellows)..... 4	Beauty of Plumstead (Norman)..... 1
Elegant (Dodwell)..... 3	Teresa (Simonite)..... 1
Fairy Queen (Hartley)..... 3	Thomas Fleming (Adams)..... 1
Ethel (Fellows)..... 3	Miss Williams..... 1
Mrs. Adams (Adams)..... 3	Daisy (Dodwell)..... 1
Victoria (Abercrombie)..... 3	Edith..... 1

—G. RUDD.

JOSEPHINE DE MALINES PEAR.

YOUR correspondent "C. B." (page 29) asks if others have found their Josephine de Malines Pears ripen early this season. Although February and March are given as its season for ripening in some nurserymen's fruit catalogues, I think it more often ripens in December than at that time. We commenced using it this winter on December 14th, these were gathered on October 25th from a south wall. We are now using the same variety gathered from a west wall on the same date, and have another lot not yet ripe which were not gathered until November 29th, also from a west wall. Thus we are enabled to have a supply of this best of winter Pears for nearly two months. I say best, as I consider it has no equal in its season. It remains good some time after it is ripe without deteriorating in flavour and never shrivels. It is a prolific kind both on the Pear and Quince stocks; the fruit is always free from cracks and scabs. In this locality and heavy soil it does not succeed as a pyramid, the wood does not become ripened enough to form fruiting spurs.—A. BARKER, *Hindlip Gardens*.

DURING the last few years I have noticed the above excellent Pear spoken of in the horticultural press as ripening earlier than usual. I have also noticed in fruit catalogues generally that the time of ripening is stated from April to May. Has anyone ever tasted it in good condition in May? My experience of it is, that the latter end of November and through December is the time that this excellent Pear is in good table condition. If the fruits have not been properly matured it may keep a month or so longer, but then the fruit is not in such good condition as it is when ripe during the season I have stated. A good late Pear that will not deceive anyone in the time of ripening is Bergamot Esperen.—A. YOUNG.

PAST v. PRESENT WRITERS.

ADVICE TO YOUNG GARDENERS.

MRS. MALAPROP long ago declared that "comparisons are odorous," and the old lady, though using her selection of words somewhat malapropos, was nevertheless in this saying strictly true to the letter. Unfortunately the "odour" in "comparisons" is generally unpleasant. We are all of us so much affected by our own ideas, and think, alas! too frequently that they must be the best. I have had a share amongst the past, and, thanks to our Editor, am yet occasionally seen among the present writers. I am much older than our Chaplain, as far as connection with our Journal goes, for it is more than thirty years ago that I penned the first words that I ever sent to the office. I almost feel again the trepidation with which I despatched that first missive, and I think I recollect the subject on which I ventured to write was "A Matter of Fact." Necessarily, then, as this was more than thirty years ago, I am getting on—disposed, therefore, to be a praiser of the days past rather than of the present; and I could not help thinking with "A Philistine," what could be the matter with "H., Notts," and that something in the Christmas feeding must have disagreed with him. If so, I am sure we all hope this has passed off, and that in the papers he will soon give to our Journal he will help to keep up its character for practical utility. So far as my humble judgment goes, the character to which "H., Notts," has

borne such willing testimony in the years long since gone by has not departed. I would name writers of the present day whose thoughts add a lustre to any page, but doubtless they would not thank me; and though my fingers itch to pen their names, I forbear, believing this, that when they are gone, which God grant may be in the very distant future, their loss to our Journal will be deeply felt and widely lamented, although no doubt that then there will be good men and true to take their place, for

"New crops of mushroom boys succeed
And push us from our forms."

Having learnt the little I know of our Journal's subjects chiefly from its pages, and acknowledging my indebtedness to many writers both of the past and the present, I venture to think that the verdict of present readers of the Journal, even though they be old enough to recollect it as the "Cottage Gardener," will not endorse the sentiments of "H., Notts."

There is one other point about these comparisons, and that is a little sting which generally leaves a sense of soreness. Now, I have always felt peculiarly that there was a great bond between the writers in our Journal, and that however hard the blows they dealt each other in discussing certain subjects, this was generally done in search of truth, in kindly feeling, with the button on the foil, though the remarks might be pointed. I, for one, do not wish this feeling to disappear. I count some of my most pleasant acquaintances, acquaintance-ship which has ripened into friendship, through the pages of our Journal, and this bond of union which unites the past with the present I should like to see increased. I fear "H., Notts," in his comparisons lessens it.

There is an old story that a dyspeptic gourmand, as fond of his money as of his good feeds, dining quietly with a medical friend, thought he might, under the charitable influence of good old port, extract from his friend rules for his own treatment without the necessity of parting with a fee. Accordingly over the fire he began his complaints, ending at last with "Now, doctor, what do you advise me to take?" "Well," said the host quietly, "I advise you without delay to take advice." Now it does seem a little odd to me that "A Young Gardener," for instance, rather disdains taking advice. He will probably read our Chaplain's sermon. I hope he will. The wonderments are not all good, and it must be allowed that there are a great many more wonderments now-a-days. If only these do not interfere with work, well and good; but it must be remembered that to a gardener his work is often something like that of a woman's in the old couplet, which ran something like this—

"Man's work stops at set of sun,
But a woman's work is never done."

This is especially the case if, as well as gardening, we have other duties, and then the wonderments are apt (it is human nature, and just now I am writing to myself as well as to young gardeners) to trench on time that ought to be otherwise employed. When wonderments do this, when mind and body are unrefreshed by them, they are better honoured in the breach than the observance—they are best let alone. All work and no play there is little fear of in the present day; and if the future men turn out dull it will not be for want of wonderments, whilst it must be allowed by all employers of labour that the great tendency of the present day is to shorten hours. I am not so certain that this is all gain, neither do I quite see in the case of many gardeners, even though appliances in aid of labour have so greatly improved, how this shortening of time can be carried out in their case, and their duty to the interests committed to their care be strictly fulfilled as well. It is well that our Chaplain does remind us sometimes that we are to be tried by One who seeth not as man seeth, and happy is the gardener, as indeed any other worker, who keeps this thought continually before him, and humbly strives to act up to it.

My experience leads me to think that that man is the happiest whose wonderments take the form of hobby connected with his work. How many gardeners, aye, and very successful men too, have thus made their pleasures an offshoot, as it were, of their work, and by their pleasant labours enlightened the rest of the world on some points in natural history or improved some neglected plant. One word more. Sincerely do I hope that young men will take to heart our Chaplain's warning about the respect due to those above us. These are days when the tension between classes is great, and yet one member cannot suffer without all suffering with it. Youth in the present day has immense advantages. Education presses on, but if its effect be to make one proud and conceited, it will be an evil instead of blessing. The more sincerely education is appreciated the more surely will the humble worker feel that he has touched but the crust of the matter, and that there are numberless mysteries still to fathom. He need not, like the old warrior, sigh for more worlds to conquer.

For obvious reasons, laying no claim to any credit in past or present pages, I drop my usual *nom de plume* for that of—A LOVER OF THE JOURNAL, PAST OR PRESENT.

It was not my intention to refer to the above subject again, but I think a few words in support of the commendable article by "Wiltshire Rector" in your issue of January 3rd will not be out of place, and I hope all young gardeners read it with intense satisfaction. He neither blames nor accuses, but simply gives good advice, which I hope will be fully appreciated and beneficial.

I feel much gratified to see in the index pages of the last volume that never before in a like period have so many communications been received from young gardeners. This I consider speaks well of us, and also looks as if there will be some scribes left when all of the present good old stock are gone.

I agree with "T. L." that head gardeners are not altogether faultless. Although quite a youth I have served under gardeners of very different character and very different in their treatment of those under their charge. A few encouraging words when deserved assist a young man greatly in his onward path. At the same time I think that head gardeners ought to keep and see that others under him keep the rules of the establishment to a letter, for it is certain if rules are not kept at the top they will not be kept at the bottom.—T. R. M.

THERE seems a little misunderstanding about the advice of "A Working Gardener," and the comment of "H., Notts." The way I read the letter of "A Working Gardener" I could not see much, if anything, to find fault with, and I am very much inclined to think some at least of your correspondents are somewhat blind to their own interest. What interest can it be for "A Working Gardener," "H., Notts," or any other member of the fraternity to cast a stone at the present generation of young gardeners? No, it was not intended to hurt their feelings, but I take it to be a gentle reminder that we must not slumber, but be up and doing. "Let him that standeth take heed lest he fall" was somewhere near, if not the text from which your correspondent preached. It is useless for young men to say they can do this, that, and the other. They cannot serve two masters, as I know from experience, and this I strive earnestly to impress upon the minds of the young men under me. It is very few years since I was a journeyman, and by no means without fault; nor do I wish to be considered spotless now. Let young men read the articles in question again, and I think they will be of the same opinion as—A YOUNG HEAD GARDENER.

[We have two other excellent letters on this subject which will be published; for some others we fear space will not be available, but "H., Notts," will be accorded space for reply if he desires it. In the meantime we suggest that the whole subject be well considered, and in a few months hence if the sound advice that has been given is turned to account its value will be appreciated. We have no fear that the gardeners and writers of the future will not be as competent as those of the past and the present; but that is not enough. Our hope is that they will be better cultivators and better writers, both in their own interests and in those of the art that they should ever strive to improve.]

THE TULIP.

THE fortnightly meeting of the Manchester Horticultural Improvement Society was held in the old Town Hall on Thursday the 17th inst., Mr. Bruce Findlay in the chair. There was a large attendance.

Mr. F. Robinson read a paper on the Tulip. He said a history was connected with this plant in some respects differing from most floral productions. The Tulip is a native of the Levant and the warmer parts of Asia, and is very common in Syria and Palestine. In the year 1559 the Tulip was rapidly distributed through all parts of Europe, being brought from Persia by Conrad Gesner, an eminent German physician and naturalist. Early in the seventeenth century the special cultivation of particular varieties was first prosecuted to a considerable extent in the Netherlands, and the price of the roots was higher in value than that of the most precious metals. In the years 1634 to 1637 the passion for the possession of choice Tulips became so strong amongst the Dutch, that dealing in them became one of the most important money speculations, and the bulbs were sold and resold at enormous prices. For one root of the Viceroy variety £250 was paid, while for Semper Augustus a person agreed to give 4600 florins (equal to £460) with the addition of a new carriage and a pair of horses. Another agreed to give twelve acres of land for a single root of this sort. As late as the year 1854 Mr. Groom of Clapham catalogued show Tulips at enormous prices: Duchess of Cambridge, Princess Mary of Cambridge, and Miss Eliza Seymour were sold at one hundred guineas each, others at fifty, twenty-one, and ten guineas per root. In the following year, 1855, the whole of Mr. Groom's collection, which consisted of over 200,000 roots, was sold by auction, as they stood in the rows, at very low prices, and from this time the Tulip as a show flower declined in the public favour at a rapid rate. Mr. Robinson described the different sections of the late or show-blooming varieties—viz., bizarres, bybœmens, roses, and breeders, the three first being again divided into the feathered and flamed forms. The soil needed, the planting time, and the treatment were fully and clearly stated; and he next passed on to the early-blooming sorts—those mostly used for the decoration of our greenhouses and conservatories, as well to the broad stretches of beds to be seen in the spring in public parks and private gardens, where they are grown in masses in the flower beds. An approximate estimate of the numbers sent from Holland annually of a few of the leading sorts would be about as follows:—Scarlet Duc Van Thol, 800,000; White Pottebakker, 300,000; Golden Prince, 500,000; White Queen Victoria, 500,000; and Thomas Moore, 100,000. The total number of flowering bulbs of the Tulip yearly exported by the Dutch florists amounts to over 5,000,000 bulbs. The commercial value for a flower at the present day of a new variety of early Tulip, if of unusually fine quality, would be about £1, being only about one-tenth the value of a new Hyacinth. The reason for this difference is that it would take fifty years to get up a stock large enough to send out; while with a Hyacinth, which multiplies rapidly, the same results could be produced in ten years.

In the discussion which followed much light was thrown upon the manner in which the new bulbs were reproduced. For in planting the bulbs in autumn and growth taking place in the spring the flower stem is plainly observed rising from the centre of the bulb, but when the bulbs are taken up after flowering the flower stem is on the outside of the one taken from the ground. A process has gone on all through the growing season by which the nutriment first taken up by the roots and passed through the leaves, and receiving fresh material from the air, is again passed down the leaves and deposited at the base of the flower stem, and gradually built up into a new flowering bulb for the following season. Mr. G. Lunt, Mr. Astley, Mr. Tait, M. Findlay, and the Hon. Secretary (Mr. W. Swan) took part in the discus-

sion. It was announced that Mr. B. Findlay would give his paper on the next meeting night, January 24th; subject, "A Plant: What is it?"

PLANT-FORCING.

WITH the new year the forcing of plants and bulbs may be said to commence with earnestness, and many indeed are the means and contrivances resorted to with a view to having different plants in flower out of their natural seasons. It seems almost needless to say that success, both in regard to quality and quantity of bloom and the precise time at which individual plants are required to produce their flowers, depends in a great measure on two things—viz., the state the plants are in, and the treatment they have received preparatory to being forced in the first place; secondly, heat and moisture. Unless a certain amount of preparation and the necessary requirements of a plant have been attended to before its introduction into a comparatively high temperature satisfactory results need not be anticipated. To explain the matter more clearly I would say—speaking in a broad sense—that plants intended to be forced must not be taken direct from the borders and put into pots and into a strong heat at the same time, as such a process has a very great tendency to defeat the object in view. Such plants, for instance, as *Azalea pontica*, *Rhododendrons*, *Lilacs*, *Deutzias*, *Guelder Roses*, *Andromedas*, and other hardwooded examples, should be potted early in the autumn months and be plunged in coal ashes in a shady place, there to establish themselves till within eight or ten weeks of the time they are wanted to produce their flowers. Herbaceous and bulbous-rooted plants, such as *Spiræa japonica*, *Dielytra spectabilis*, *Solomon's Seal*, *Lily of the Valley*, *Heliborus niger*, *Hemerocallis flava* and *fulva*, *Hyacinths*, *Tulips*, *Narcissus*, *Crocuses*, &c., must also be potted in the autumn and plunged in ashes out of doors for a reasonable time before being forced. The reasons for these preparations are obvious enough to most practitioners; not so, however, perhaps to the tyro, but the fact still remains that unless a plant is well established and has an abundance of fresh healthy roots, its buds and flowers do not respond to the heat with such freedom as is necessary to insure the highest success. This rule, however, must not be taken in too literal a sense, as it has exceptions. I have lifted large bushes of *Syringas* and *Persian Lilacs* 6 feet high and as much in diameter, these having been transferred to a forcing house without further delay, and the result has been all that could be desired; but then it should be stated that they were taken up with a large ball of earth and an abundance of roots, and at a time when the flow of sap was most easily excited—viz., February and March, the roots, of course, being afterwards covered with two or three barrowloads of soil, well watered, and the stems syringed. There is one other very important point connected with the early forcing of plants, especially those of a hardwooded nature, and that is stating them in too high a temperature. The falling of buds, immature expansion, and weak spindly flowers wanting in colour and odoriferousness where this quality is a characteristic, are due in many instances to a certain amount of disregard and negligence on the score of heat, and are not unfrequently attributed to a totally different cause.

What temperature should plants be introduced into when forcing commences? is a question I have sometimes had put to me, and my answer has invariably been, That depends very much on the time of the year and the state of the weather at the time it is purposed to begin. No hard-and-fast line can be drawn, but it cannot be wrong to allow the inside temperature to be 10° or 15° higher than the outside, bearing in mind to let the one fluctuate with the other, and when the buds have commenced moving increase the temperature by another 10° or 15°. In practice this rule will, in the great majority of cases, be found a good and safe one to follow, much more so than a given minimum and maximum of heat irrespective of the external elements. To insist on a thermometer inside a forcing house standing at 60° or 70° during a cold winter's night when there are several degrees of frost is not, in my opinion, conducive to health and vigour in plant life. Further, I would say that such a state of things would greatly tend to produce the opposite effect, for to maintain anything like this temperature under such conditions as I allude to, unless there is an extraordinary amount of heating surface, means that the pipes must be so hot as to preclude the bare hand from remaining on them for more than a second or two, and when this is the case the atmosphere cannot be other than in a very dry state, a circumstance which, as is well known, is productive of evil consequences to all kinds of vegetation in a growing state. An early vinery with a good bed of fermenting material in the middle, made of loam and stable litter, is a very good place for forcing such plants as have been named, the bed being used when the heat has subsided sufficiently for plunging the pots in. In this matter, however, great caution and judgment must be exercised, otherwise serious consequences in the way of burnt roots owing to the violent heat will assuredly follow, and which no subsequent care and attention will rectify. A want of fore-

Fig. 10.—*SENECIO MACROGLOSSUS*.

thought and neglect on this point very often result in dearly bought experience.

With such bulbous-rooted plants as Hyacinths, Tulips, and Narcissus, also Lily of the Valley, it is a very good plan to place inverted flower pots over their crowns for a short time when first put into heat. This has a greatly benefiting influence, especially with the last-named, which when thus treated throws up its leaves and flowers simultaneously. Syringe well overhead two or three times daily all hard-wooded plants, such as Azaleas, Rhododendrons, Deutzias, Lilacs, Syringas, and kindred plants up to a within a day or two of their first flowers expanding, at which period they may be moved to the conservatory or some other cool and airy structure.—J. HORSEFIELD, *Heytesbury*.

IVY-LEAVED SENECIOS.

FROM the plebeian Groundsel to the handsome *Senecio speciosus* and *S. pulcher* is a great stride, but this exceedingly large family comprises an even greater range of variation than there is between those species. One of the most remarkable groups is that which includes the species from the southern hemisphere and other tropical or arid climates, mostly distinguished by their succulent stems and leaves, strangely imitative forms, and diverse habit. Among those the climbing Ivy-leaved Senecios are especially noteworthy and really ornamental, though but seldom seen in gardens and known to comparatively few horticulturists.

It would be difficult to persuade the uninitiated that the remarkable plant *Senecio macroglossus*, represented in fig. 10, is a relative of our common Groundsel, yet such is the fact, and that is not the strangest part of its character. The leaves are so exactly like the smaller-leaved varieties of Ivy that when not in flower it is frequently mistaken for them by visitors to the succulent house at Kew. It is one of those strange examples of vegetable mimicry which Mr. Leo Grindon has so interestingly reviewed in his little work on that subject, and none of those he has noted is more striking than this. The two genera *Hedera* and *Senecio* are widely separated in natural arrangement, and the particular species in question are respectively from northern Europe and southern Africa, and therefore neither geographically nor naturally related; yet the African Groundsel produces a leaf the exact counterpart of the European Ivy in form, colour, veining, and even somewhat in texture, though rather more fleshy. The habit of the *Senecio* also closely resembles the Ivy, the shoots scrambling about in an irregular and careless manner; but the stems, of course, are not furnished with the small roots that aid the Ivy in its progress up trees and over old walls or ruins.

In the flowers resemblance to another plant may be noted, but this time much more closely related—namely, the *Etoile d'Or* variety of *Chrysanthemum frutescens*. The colour is a trifle lighter and rather more creamy, yet bright and clear; the form of the flower heads, and especially of the outer florets, being very suggestive of the *Chrysanthemum*. They are produced very freely, and at a time of year when flowers are particularly appreciated—namely, from December to Feb-

ruary, lasting either on the plant or if cut and placed in water a week or more. This is no mean recommendation, and should alone be sufficient to rescue it from its present position amongst neglected plants.

Senecio macroglossus has been found on the Table Mountain, at the Cape of Good Hope, and in other districts of South Africa, seeds having been first sent to Kew by Mr. Sanderson in 1868, and from these probably the first plants grown in this country were raised. Sir Joseph Hooker states that he has heard that in some continental or other cities

this plant is grown in rooms and trained round the walls near the ceiling, and from its peculiar succulent structure it would, no doubt, be fitted for such dry positions, though its strength would be severely tested in ordinary English rooms. The best position for it is a greenhouse or cool stove, but the former is preferable, as it cannot endure a moist atmosphere. It is not particular as to compost, light sandy loam with a little leaf soil or old decayed manure being suitable, and if grown in a pot this must be thoroughly drained and water very carefully supplied. The best plan is, however, that adopted at Kew, where it is planted out and trained up the roof of the house.

An allied species, *S. mikanioides*, is known as "Nice Ivy," and in St. Helena as "Ground Ivy," both names being derived from the resemblance of the leaves to those of the Ivy.—L. CASTLE.

THE PROFESSIONAL GARDENERS' FRIENDLY BENEFIT SOCIETY.

IN reference to this Society, the seventeenth annual report of which was published on page 39 last week, we shall answer some inquiries and anticipate others by directing attention to the leading features of the Association. We do this the more willingly since in our remarks on the excellent and admirably conducted "United Horticultural Benefit and Provident Society," established in London (see page 349, October 25th, 1883), we stated that "our primary object was to benefit gardeners and not to advertise the claims of any particular society; and if any other institution exists of the same nature that offers greater advantages to its members, and is equally and indisputably safe, we will on being made acquainted with it not the less readily urge its claims for support."

The Society under notice, which is established and is so well managed at Leeds, is not adduced as offering "greater advantages" than the London institution. The two Societies are different in their working, both being safe, sound, and equally well conducted, and engaged in a most commendable and important work.

The principle of the London Society is to act not only as a benefit society but as an insurance and bank to the members, the surplus funds after the demands for sickness are met being invested for each member, and become his property absolutely. The payments are based on a scale that time has proved ample for meeting the demands of sickness and insuring a substantial residue—namely, 6d. a week for insuring a payment of 10s. 6d. weekly for twenty-six weeks, and half that sum for a similar period, besides small contributions to the benevolent and management funds.

In the Leeds Society there is no surplus banked for the members; but the management appears to be based on the principle of dispensing the greatest amount of benefits in sickness, and providing grants at the death of members and their wives by the lowest possible scale of payment. In this respect the results are remarkable, and we suspect unparalleled. In return for 3d. a week the payment of 10s. weekly is secured for twenty-six weeks, then 5s. weekly as long as the member is ill and conducts himself in accordance with the rules of the Society. This 5s. may indeed amount to a pension provided a member should be incapacitated by illness for an indefinite time. That these privileges can be maintained for such a trifling sum is very gratifying. It is evident that the moral character and sober lives of gardeners have a powerful influence in contributing to the result, while there is always the greatest reluctance on their part to relinquish their duties, and for members to place themselves on the funds of a society for a slight ailment; and when compelled to do so it is incumbent on them from the circumstances of their position to resume their work at the earliest possible moment. "Class privileges" is a term not always of pleasant import; but it is clear that there are class privileges possessed by gardeners by which they have the utmost right to benefit, and they can do so by joining such provident societies as these with much greater advantage to themselves than by becoming members of general benefit societies that include persons of every calling, and practically regardless of their habits of life. We are not aware that there are any such institutions as the two in question that can afford to dispense anything like equal benefits for anything like similar rates of payment. We commend them to all members of the craft who desire to make some provision for illness, and especially to young gardeners, every one of whom should take advantage of their position and the facilities offered by becoming members of one or other of these excellent societies.

At the first glance it seems almost incredible that the Leeds Society can offer so much in return for such slight outlay, but experience has proved that it can do so safely; and with a

regular accretion of young members its accumulated fund of £675 will increase. There is a rule, however, to provide for emergencies to the effect that if the accumulated fund should fall to £1 10s. a member, that an additional sum of 1d. or more a week be paid until the amount is equal to £2 10s. per member, when the contributions will be reduced to the nominal sum of 3d. weekly. It is pleasing to record that this rule has never been called into operation. So far from this being so the amount per member, instead of falling to £1 10s., has risen to upwards of £6. The Society is open to the membership of all gardeners, and applicants have to sign a declaration that they have worked as a gardener for seven years successively (five years for members up to twenty-one, three years up to eighteen years of age), and should their statements ever be detected as false they lose all claims to the benefits of the Society. It is thus difficult for any but *bonâ fide* gardeners, who must, moreover, be men of good character, to get enrolled as members. Initiatory fees are charged varying in amount according to the ages of applicants.

The northern Society is further supported by a number of honorary members, and the good work of the Committee is recognised by the municipal authorities and local dignitaries of Leeds, some of whom invariably attend the anniversary dinners at which all the benefit members who can do so assemble.

At the monthly meetings papers on gardening are read, and discussions held thereon. In order to encourage the production of papers prizes were offered for the first time last year by a leading banker, Mr. Oxley; but though eight papers were read only three were placed in competition, and as the prizes are repeated under different conditions, the members expect greater competition and better results next year. The three prize papers are in our hands, and inverting the usual order we shall publish the third first, and the others, or abridgments of them, will follow in due time.

We have only to add that the address of the Secretary of the Professional Gardeners' Friendly Benefit Society is Mr. W. Sunley, Bacchus Hill, Moor Allerton, Leeds, who will forward rules in return for stamped directed envelopes, and give any information that may be needed to gardeners who may desire further particulars of the Association. Our advice is that gardeners should study carefully the rules of both the excellent Societies mentioned, and decide which they consider the most advantageous in each individual case. We have observed that gardeners who have not joined societies such as these, and who are now too old to do so—forty-five years of age being the limit—regret that they were not acquainted with their existence sooner. With the sole and entire object of helping those who are engaged in gardening operations to help themselves by making provision for illness we have made these Societies more widely known than before, and the Secretary of one of them, we are glad to know, has had his labours enhanced accordingly. The Secretary of the other will not object to similar work, the purpose of both being to do good to their fellow workers in the craft in which they are engaged.

PROPAGATION BY CUTTINGS.

(Continued from page 14.)

THOSE who have a greenhouse heated by hot water are to a great extent independent of external influences, and all that is necessary is to set about the work in the proper way, for failure is sure to be the result of unintelligent and badly performed operations. A frame placed at the warm end of the greenhouse over the hot-water pipes will enable the amateur to raise a quantity of plants for bedding-out, thus making the garden gay in summer, and for raising plants in spring, which grown through the summer will make the greenhouse bright at that season, besides affording plants for house-decoration.

The bed, for there must be one, is readily formed by bricking-up the sides from the floor so as to enclose the hot-water pipes. The ends must also be closed in a similar manner, so that the heat cannot escape by either the sides or ends. The width ought not to be more than 1 foot on each side of the pipe, or pipes if they are above each other, clear of the pipes to the brickwork. This will give a space of 2 feet 4 inches clear, and will need a frame 2 feet 6 inches wide to rest on the brickwork; or if the bed be against a side or end wall of the house the frame on that side may be supported by holdfasts driven into the wall, and the side walls should be carried up so that they are 6 inches on the level above the hot-water pipes. The part below the pipes may be filled in level with the bottom of the hot-water pipes solid, and the part around and above the pipes filled with coarse rubble surfaced with a layer of finer yet open material. The bed is now ready for the frame.

The frame should have sides about 6 to 8 inches deep, both sides

alike if a span, and if a lean-to the back to be a foot to 15 inches deep; or if a span roof, 1 foot to 15 inches at the ridge. This difference in height will admit of different sizes of cuttings. Inch red deal is a proper material for the sides and ends, and should be given a coat or two of creosote to preserve it from decay and fungi. The lights need not be thicker than $1\frac{1}{2}$ inch, as little woodwork being used as possible; only sufficient must be employed to insure stability. The glass should be 21 oz. sheet thirds. Cuttings require shade, of course, but it can be given when the sun is bright, and when that is not the case the more light the cuttings have the better. The lights are best hung on hinges or butts (brass being the best and cheapest in the end) either at the back or at the ridge, as the case may be, lean-to or span, which will readily allow of inspection of the cuttings. Means for regulating the ventilation are unnecessary, except such as can be readily improvised by the propagator—small pieces of board cut into small serratures, so as to form notches, are as good as anything. This thing being completed—I have been somewhat explicit, so that anyone with a little ingenuity may easily be their own carpenter, glazier, painter, and mason—we have only to provide the plunging material.

There is no question that a non-conducting, porous, moisture-holding, and slow-decomposing material is far the best. Peat or loam, as might be the staple required for growing the plants, with a large admixture of silver sand, was considered the best material for cuttings; but this is exploded. Experience has proved that what is also the best plunging material is also the most efficacious as a root-producer. The best plunging material and for rooting cuttings in is cocoa-nut fibre refuse. This is one of the many good hints for which we are indebted to Donald Beaton, and which I tried over twenty years ago. Its extensive use speaks volumes as to its value. The next best material is unquestionably sawdust, first brought to public notice by Mr. David Thomson in these pages. Either of these materials put in the frame 4 inches deep answers as a plunging material if it be considered advisable to have the cuttings inserted in pots, which is quite unnecessary for nine-tenths of the cuttings an amateur usually propagates, or greenhouse plants generally, as the cuttings inserted in the material will root quite as well—nay, better—and they can readily be lifted and potted. It must be observed that neither of the materials is intended to be put forward as the best for growing plants, hence those that do not care about potting-off can insert the cuttings singly in thumbs in the soil the plants would require when growing, with about twice as much sand as would ordinarily be employed.

If the plunging or inserting material be in a proper condition as to moisture, a gentle sprinkling will be all the water required. The frame can be kept close until the cuttings start into growth, if they are of a description that root quickly, or if there be too much moisture it can be liberated by a little ventilation; but it is far better to wipe the glass every morning than to admit air to dispel it, particularly in the daytime, when the exhausting process consequent on evaporation is at its height. A little at night is far better, especially if the plants have required water to insure their keeping fresh. Shade should only be given to prevent flagging, and will need to be more particularly attended to when the cuttings are inserted, or rather for a short time afterwards, than when they have been inserted some time. When the cuttings have rooted ventilation should be given, so as to gradually harden them, and having grown to the extent of a couple of inches their tops may be taken off and inserted as cuttings. The removal of the tops of the first lot of cuttings will cause them to branch, and, what is of more consequence, better enable them to bear the potting process. If potted when the tops are removed return them to the propagating frame, where they will sooner become established, and when started into growth again place them in a not-too-airy position of the house for a few days.

Those having a house divided into two compartments, one a greenhouse and the other a stove, can propagate the latter plants in a frame similar to that described for propagating greenhouse plants; indeed most plants will strike in a frame placed in a house in which the plants are growing, but the process will, though slower, be quite as sure as if bottom heat were employed, which, it may be observed, only facilitates the process.

But what is the amateur to do who has none of the above means of propagating plants, having only means of wintering plants in a cold frame or in the windows of his dwelling? There is no means for it in such a case than to fall back on the immemorial hotbed. It is a homely method, and with care and attention much can be accomplished.

The materials of the hotbed being collected, say some tree leaves and fresh stable litter with its droppings—three parts of the former and one of the latter—these must be well shaken together, moistened if dry, and thrown into a heap. When the materials are at a good heat, or in about a week, it should be again turned, outside to inside, again damped in the turning if there be any dryness, and with another turning and after laying a week it will have parted with any rank

steam and the heat have diffused itself through the mass. Then it can be made up into a bed to suit the frame, but extending 15 inches beyond it every way. A bed about 3 feet high will be sufficiently high, made up at the end of February, for commencing propagation early in March. The frame can be placed on. In a week the heat will be up, level any inequalities, replace the frame and put in 6 inches depth of cocoa-nut fibre refuse or sawdust. Into this the pots can be inserted about two-thirds of their depth, and with needful care in preventing damp or its opposite, extreme dryness, and shading from sun, with the needful air to expel an excess of moisture or foul exhalations, success can be insured. By the time the cuttings have rooted the bed will be cooled and the hardening process perfected by ventilation. A frame of this kind serves many useful purposes besides raising cuttings—viz., one of the best being a stock of plants from seed.—G. ABBEY.

(To be continued.)

NOTEWORTHY PLANTS.

THE "Botanical Magazine" for the present month contains portraits of the following plants:—

Decaisnea insignis (plate 6731).—A shrub from the Eastern Himalayas, found at an elevation of from 7000 to 8000 feet. In habit it much resembles a miniature Ash, with leaves borne on stalks in opposite pairs. The flowers are inconspicuous, but the ripe carpels are of a beautiful golden yellow and very attractive. With a little care at first this plant might possibly stand our winters. It is undoubtedly an acquisition.

Primula prolifera (plate 6732), probably better known under the name of *P. imperialis*, is an introduction of great value to hardy plant growers. Found at an elevation of from 4000 to 16,000 feet it is well qualified to withstand all the variations of our English climate. The leaves are exactly like those of *P. japonica*; and the flowers, which are large bright sulphur-yellow, are borne in whorls of a dozen at intervals on the flower stem. It was introduced by Anderson Henry, Esq., Edinburgh, in whose hands is the stock, which we hope will soon be distributed among his friends.

Lotus Peltorhynchus (plate 6733).—A remarkable plant from the Canary Islands. It has hitherto been exceedingly rare, but seeds have been obtained at Kew, and will soon be distributed. The flowers are very bright scarlet, borne in clusters towards the ends of the shoots, very branching, with narrow Galium-like leaves in whorls. A real acquisition amongst greenhouse plants.

Morina Coulteriana (plate 6734).—Although from a garden standpoint not to be compared to the old popular *M. longifolia*, its small, yellow, curious curved flowers make it a desirable plant where variety is in demand. The habit is much the same as *M. longifolia*, with narrower spiny leaves.

Phacelia campanularia (plate 6735).—A hardy annual, nearly allied to the much-admired *Phacelia grandiflora*. The flowers are scarcely so large, but of a much more intense blue, even rivalling our best Gentians. They are also very numerous and attractive.

ROYAL METEOROLOGICAL SOCIETY.

THE annual general meeting of this Society was held on Wednesday evening the 16th inst., at 25, Great George Street, Mr. J. K. Laughton, F.R.A.S., President, in the chair.

The Secretary read the report of the Council, which showed that the past few months mark a very important epoch in the history of the Society. In October the Council received the intimation that Her Majesty had been graciously pleased to grant the Society permission to assume the prefix "Royal." In consequence the Society has become and will henceforth be called the Royal Meteorological Society. In December the Fellows made certain alterations in the byelaws, by which the annual subscription has been increased. The report also showed that the Society is doing a great deal of practical work, not only by holding meetings and publishing the papers read at the same, but also by the establishment of a large number of observing stations, which are regularly inspected, so that the results obtained from them may be strictly uniform and comparable. The number of Fellows is 549, and of honorary members nineteen, thus making a total of 568.

The President then delivered his address, in which he referred to the experiments made by Mr. Saxon Snell, Mr. Bertram, and Mr. Hele Shaw, with the object of determining the coefficients of Biram's anemometers. As yet these can scarcely be considered quite satisfactory, for though made with the utmost care they give results differing from each other by nearly 25 per cent., and from the known truth in opposite directions. The reduction of barometric readings to sea level is another problem of great interest and importance, the solution of which is far from perfect, and as applied to the converse determination of altitudes has been pronounced by Mr. Gilbert of the U.S. Geological Survey to be beset with difficulties "so numerous and so baffling, that there is no reason to hope that they will ever be fully overcome." In many cases, too, the reduction, even if correct, implies an accumulation of air in places where no air exists; and isobars so drawn traversing mighty mountain ranges such as the Rocky Mountains or the Himalayas, or elevated plateaus such as those of central or eastern Asia, convey an impression which may easily lead to serious mistakes. The great achievement of the year is unquestionably the gathering-in of the observations taken by international agreement at nine arctic stations, in which amidst circumstances of more or less discomfort parties continued through a full period of twelve months. With one station established by the United States on the shores of Lady Franklin Bay it has been found impossible to communicate. This was established in the summer of 1881, and no trustworthy news has since been

received. Preliminary reports have been published from the English station at Fort Rae on the northern shores of the Great Slave Lake, from the German station in Cumberland Sound, from the Austrian at Jan Mayen, and from some of the others; but the principal interest attaches not to the observations taken separately, but to the collation and comparison of the whole, which may be expected to lead the way towards problems of the greatest importance to meteorology. In the present day one science is so mixed up with a number of others, and so involved in them, that it is impossible to separate them, or to define the exact limits of each. Many of the problems of meteorology belong as much to geography, or at times even to experimental physics, and an address which speaks of the progress of meteorology is perhaps apt to appear in some degree discursive. It is that the true student of Nature, whilst limiting his detailed work to one particular direction, must consider her kingdom as a grand and comprehensive whole, one and indivisible.

The following gentlemen were elected the officers and Council for the ensuing year:—*President*: Robert Henry Scott, M.A., F.R.S., F.G.S. *Vice-Presidents*: Hon. Ralph Abercromby; Edmund Douglas Archibald, M.A.; John Knox Laughton, M.A., F.R.A.S., F.R.G.S.; William Marcet, M.D., F.R.S., F.C.S. *Treasurer*: Henry Perigal, F.R.A.S. *Trustees*: Hon. Francis Albert Rollo Russell, M.A.; Stephen William Silver, F.R.G.S. *Secretaries*: George James Symons, F.R.S.; John William Tripe, M.D., M.R.C.P. *Foreign Secretary*: George Mathews Whipple, B.Sc., F.R.A.S. *Council*: William Morris Beaufort, F.R.A.S., F.R.G.S.; George Chatterton, M.A., M.Inst.C.E.; John Sanford Dyason, F.R.G.S.; William Ellis, F.R.A.S.; Charles Harding; Richard Inwards, F.R.A.S.; Baldwin Latham, M.Inst.C.E., F.G.S.; Robert John Lecky, F.R.A.S.; Edward Mawley, F.R.H.S.; Cuthbert E. Peek, M.A., F.R.G.S.; Capt. Henry Toynbee, F.R.A.S.; Charles Theodore Williams, M.A., M.D., F.R.C.P.

CULTIVATION OF DOUBLE PRIMULAS.

Few plants are so valuable as these when successfully grown. They are useful for affording flowers, cuttings for table decoration, also for greenhouse and conservatory adornment, and by judicious treatment may be had in flower for ten months of the year. The best method of propagating double Primulas is in the first place to prepare a quantity of well-decayed leaf soil passed through a fine sieve; it should be mixed with sharp sand in the proportion of one bushel of leaf soil to a peck and a half of sand; after this is done pack the compost rather tightly round the collar of the plants so as to form a kind of pyramid round each. This should be done in May or June to insure early flowers, and for succession another batch should be done a month later. The plants should be placed in a close house or pit, water being withheld from the roots, only syringing moderately to keep the compost moist. In about a month from the time of being dressed roots will be found starting from the stems of the plants. It should be mentioned that before using the compost some of the leaves should be removed with a sharp knife, leaving about half a dozen to a head. Shading must also be employed to prevent the soil getting dry, as the less the plants are watered the better.

When the roots have firm hold of the leaf soil the plants should be shaken out of the pots and divided with a knife, leaving all available new roots with each crown. Transfer the young plants into 60-size pots, which should be placed into a close pit close to the glass, and if a little bottom heat be at command so much the better. For instance, an old Melon or Cucumber frame will answer admirably for this purpose. Shading must be again attended to, gradually lessening it as the plants become established, which can be seen by turning a plant or two carefully out of the pot, and then they should be shaded only when the sun is very strong. Repot them in about half and half leaf soil as finely sifted as before, and very light fibry loam with plenty of sand and careful drainage.

When the plants are well rooted, which will be about a month from the time of potting, they will require shifting to 48-size pots, which are large enough however luxuriant the plants may be. The compost employed this time should be three-fourths turfy loam and one-fourth well-decomposed cow manure, the plants now being placed in a pit without any bottom heat.

The second and third batches should be placed in a house slightly shaded if the situation requires it, and kept close for a few days, then gradually inure them to the light, as after October they will require full exposure to insure good and strong foliage and flowers. The first potted batch will by this time be showing a number of flowers, and should be removed to alight structure or placed on shelves where a small quantity is grown. The temperature of the house during the winter months must be as near 55° by day as possible, or rising to 60° with sun heat and falling to 50° at night. After the pots are filled with roots a little soot water may be given once a week with advantage, also a little Clay's Fertiliser once a month. The lower leaves when showing signs of decay may be cut in quite close either with a small knife or a pair of Grape scissors, removing a good quantity

whether decayed or not where flower only is required, as this will encourage and prolong their blooming.

After the first batch has been in flower about a month they will require a rest for a time. In three weeks, however, they will begin to flower again, but the second batch will take their place in the interval, so that by this means the cultivator may have a continuation of useful flowers till July. Shading must again be provided when the bright days of spring come, as the flowers soon becomes pinky, which deprives them of their value when pure white flowers are in request. Careful watering is essential throughout the season.—J. PITHERS, *Summerhill*.

ERYNGIUMS.

ALTHOUGH umbelliferous plants generally have little floral beauty to recommend them to the general cultivator, yet a few



Fig. 11.—*Eryngium maritimum*.

compare very favourably with many of our favourite garden plants in handsome foliage and general ornamental character. Eryngiums, or Eringos as they are more commonly called, rank among the most striking of these; the bright and varied colours presented by their involucre, and also by their foliage, render them very attractive and desirable. They are said, however, by some not very hopeful growers to be too tender for our climate and to succumb during winter, a charge which may hold good when the season has been excessively damp; an extreme to which, although we are unfortunately liable, is hardly sufficient excuse to account for their scarcity in cultivation. The fault lies more, I think, in the fact that we are not so persistent in our efforts to succeed as we ought to be; too ready to throw it up as useless, after one, or at the most two, unsuccessful attempts to establish them. I find that in our average winter these plants require no protection whatever, and such as *E. pandanifolium*, *E. bromeliæfolium*, *E. Lasseauxii*, *E. paniculatum*,

and *E. giganteum*, which are considered the most tender in cultivation, prove excellent for the rockwork, even in the most exposed situations, where their graceful spiny-edged foliage lend quite a subtropical character to it, even in midwinter, and more especially when tastefully arranged and dotted about for effect. That much requires to be done in this way before we can claim or even think of perfection in the art of rockwork ornamentation is obvious, not only from the desolate and neglected state most of them present in the winter season, but also in the careless distribution and arrangement of the plants.

The Sea Holly (fig. 11), as *E. maritimum* is not inaptly termed, is one of the most striking of our native plants, and has very beautiful silvery spiny foliage, which contrasts very agreeably with the steel-blue flowers. It is easily grown either on a rockery or in a light well-drained border.

A few of the other species not favoured with such striking foliage as the above compensate for this defect in the varied beauty of their involucres. Among them *E. amethystinum*, syn. *E. azureum* and *E. cœruleum*, *E. Andersonii*, *E. campestre*, *E. Bourgati*, and *E. dichotomum* are all worthy of cultivation, and should find a place in every garden where room can be spared for their full development.

As their roots are easily injured in a damp undrained position a rockery should be chosen as a site, but where that is not available its place can be, to a great extent, supplied in the border by the free use of stones about the roots when planting, always choosing the most elevated position. This is not so unsightly, and serves its purpose better than the old-fashioned mound of earth so much resorted to long ago.

Eringos are rather difficult to propagate by division, owing to most of them having large tuber-like roots, and are much easier managed from seed, which should be sown as soon as ripe in pots and placed in a little heat. Gradually harden the seedlings and as soon as they are ready to handle place them in large thumb pots.—M. S.

PEACH TREES CASTING THEIR BUDS.

CAN any readers of the Journal say from experience if the constant use of spring water would be likely to cause Peach trees to cast their buds? The trees in question are six in number, and were planted three years ago in an inside border, all having done well. Copious supplies of water were needed, and having little reserve for soft water, we were driven to use the water above mentioned, which we warmed to the required temperature. All appeared satisfactory, and a good crop of fruit was anticipated up to about a month ago, when the buds began to drop out, and have continued to do so to a serious extent, though the house is fully ventilated. The house is a lean-to facing south. Three trees are planted along the front, two supernumeraries in the centre, and one at the end; they are successional varieties, but all are casting their buds alike, not only fruit buds, but in many instances wood buds as well. I find on examination that these are black in the centre, and appear to have been dead some time. What can be the cause?—ALPHA.

GARDENS ABOUT BRISTOL.

BRENTREY HOUSE.

THESE gardens have been for some years under the charge of Mr. Gibson, and give unmistakeable evidence of the skill and energy of this intelligent gardener. The whole place is exceedingly well kept, and nothing but the best of everything grown, overcrowding being carefully avoided, while cleanliness ruled everywhere. Most noteworthy as being most uncommon was a house devoted principally to Dipladenias. These completely covered the roof, and strikingly beautiful were the grandly flowered plants of the richly coloured *D. Brearleyana*; and in contrast with these were several seedlings of various shades of colour, the most distinct having large blooms of a lovely pale pink hue; and another with medium-sized blooms of a rich crimson and shaded purple, was also good and distinct, especially in its sturdy habit of growth and smooth green leaves. Several of the plants annually perfect a few of their curiously formed seed pods, and these seeds, if sown when ripe and before they become hard and dry, germinate readily in a brisk bottom heat. Mr. Gibson's seedlings vary considerably in habit and colours, some assuming a more shrubby habit than is common to the species; others, again, are singularly precocious, as they commence flowering when only in 4-inch pots. Mr. Gibson attributes much of his success with Dipladenias to the pains taken with the potting and watering. Large shifts are avoided, and the compost is composed entirely of roughly broken fibrous peat of the best quality, to this being added a liberal quantity of charcoal, crocks, and silver sand. Overwatering or anything approaching stagnation at the root soon proves fatal to these lovely climbers. They require to be trained thinly over the roof, and a rather high temperature, say from 65° to 70° by night to 75° to 80° by day, and still higher in warm weather, a proportionately moist atmosphere being also maintained. They must be kept scrupulously clean, mealy bug especially quickly overrunning them. In another three-quarter span-roofed plant stove the wall and back part of the roof was beautifully draped with a mixture of *Allamanda Hendersonii*, *Cissus discolor*, and *Dipladenias amabile* and *boliviensis*. The two former were

planted in a narrow border filled with good loamy soil, the *Dipladenias* being in pots, and the rich foliage of the *Cissus* intermingled with the flowering climbers presented the prettiest sight I have seen for some time. In an adjoining plant stove the back wall was principally covered with *Poinsettia pulcherrima*, and these planted in a narrow border composed of good loam were growing vigorously, and must subsequently have produced a number of fine showy whorls. They are freely cut for decorative purposes, and the season I was informed is a remarkably long one. *Sephanotis floribunda* are well done at Brentrey. Several experiments have been made with plants obtained from noted shy-blooming plants; but so floriferous do all alike prove, that Mr. Gibson does not agree with myself and others who are inclined to think there are some varieties much more floriferous than others.

Orchids are also well grown, the various sorts being very strong, and are said to bloom exceptionally well. *Phalaenopsis amabile*, *Cattleya Harrisonii*, and *Odontoglossum grande* were the most noteworthy at the time of my visit, and certainly bore out what had been said of the flowering qualities of the Orchids generally. Gardenias, Crotons, Dracenas, Euphorbias, Pandanus, Pterocarpus, Eucharises, and various Ferns were all in a very creditable condition, and very pretty were two baskets filled respectively with *Hoya bella* and *Æschynanthus splendens*. In a cooler house a strong plant of *Thunbergia Harrisii* was carrying large quantities of its charming pale blue flowers, and the wonder is that so few try to grow this valuable climber. At Brentrey it grows vigorously; and trained over the roof, for which style only is it adapted only to the brittle nature of the growths, it produces during the autumn a profusion of racemes of bloom which find great favour with the ladies. Near the end of September the plants are carefully removed to a house where an ordinary stove temperature is maintained, this serving to greatly prolong the display. They require but little root room, the strongest plant at Brentrey having been in a 12-inch pot for three years, but has had the surface soil and some roots removed, and more good soil given by way of top-dressing. A good peaty soil appears to suit them, and in the growing and flowering season water varied with liquid manure is frequently and liberally supplied them.

Mr. Gibson is a very successful Grape-grower, and had Madresfield Court, Muscat of Alexandria, and other popular sorts in excellent condition. The borders are inside and out, and the former rightly receive more water and liquid manure throughout the year than the majority of authorities appear to think necessary. Melons and Cucumbers are also well grown, and a few Pine Apples are annually fruited. The conservatory adjoining the residences was attractively arranged, and the kitchen garden is equally well managed. Altogether Mrs. Miller, the proprietress of this place, has every reason to be well satisfied with it.—W. IGGULDEN.



HARDY FRUIT GARDEN.

PLANTING FOR PROFIT.—Where to Plant.—A sunny slope facing the south or south-west, well sheltered from the north and east, is undoubtedly the best position; but such favoured spots are rare, and planting on the level or in open and exposed positions has more frequently to be done. A belt of trees planted at the same time around the fruit garden or orchard is good for shelter, but a thick hedge of *Thuja Lobbi* is better, for it grows faster than any fruit tree, and its dense growth is an effectual check to wind. By all means plant a tree belt, but plant also a *Thuja* hedge in front of it, and have *Thuja* hedges also intersecting the orchard, so as to break the sweeping wind among the trees, for depend upon it if we had such hedges at intervals of 60 feet or upwards among our fruit trees the blossoms would be far less subject to injury from cold wind in spring.

What to Plant.—Fruit which comes early and abundantly upon the trees, ripens early or keeps good late, combined with a healthy sturdy growth of tree or bush in all fertile soil, is what we require, and we must avoid all fanciful or speculative planting. Of Apples no dessert sort affords an earlier or more steady profit than Margil. Grafted upon the Paradise stock it makes compact little bushes about 6 feet high and of the same diameter, and every branch is almost invariably crowded with fruit from top to bottom. Nine feet apart is sufficient for such bushes, so that an imperial acre will contain 537. Taking the crop at that number of bushels, at 4s. per bushel, we have the handsome sum of £107 8s. per acre. Halve it, and we have still the by no means despicable sum of £53 14s. We have had at the same time sturdy little bushes of Margil bearing such a crop, and huge standards of Fearn's Pippin, each laden with twenty bushels of its handsome rosy fruit. If the standards would always yield such a crop we should find them most profitable, but they do not, and the bushes do, therefore we are bound to recommend them. Plant also extensively of Apples Duchess of Oldenburgh, Keswick Codlin, Mank's Codlin, Adam's Pearmain, Stirling Castle, and Warner's King, for all are of sterling merit for profitable culture. Among Pears the same may be said of Williams' Bon Chrétien, Autumn Bergamot, Beurré Clairgeau, and Comte de Flandre. Of Plums there is none like Early Rivers. Plant pyramids of it 10 feet apart, or 435 to the acre, and you will soon be rewarded with heavy crops of fine fruit ripe and in

the market before any other Plum is ready. Victoria follows it, and is well worthy of moderate culture, its fruit being large and abundant. Cluster Damson, May Duke Cherry, Pearson's Prolific Nut, Warrington Gooseberry, Prince of Wales Raspberry, and Black Naples Currant are also all profitable fruits, the last one being undoubtedly the most profitable of all in suitable soil and under good culture.

When to Plant.—At once without delay, or the trees will not make good growth this year. Never have we known a more favourable winter for planting from November onwards.

FRUIT FORCING.

VINES.—*Early Houses.*—Disbudding and tying-down Vines in early houses must have timely attention; removing all surplus bunches as soon as the most promising can be decided upon, as to leave any surplus bunches only needlessly weakens those that must ultimately remain. Thin the bunches of Hamburgs and all early varieties (excepting Sweetwaters) as soon as the berries are set, but those that do not set freely should not be thinned until the properly fertilised berries can be distinguished by their taking the lead in swelling. Any shy-setting varieties, such as Muscats, should be fertilised with Black Hamburg pollen. When Muscats are in flower keep the house drier and a few degrees warmer, affording circulation of dry warm air on all favourable occasions. For Hamburgs a night temperature of 60° to 65° will suffice, with 5° rise by day in dull weather, and 10° to 15° with sun heat. Muscats should, when in flower, have a night temperature of 65° to 70°, 75° by day in dull weather, and 80° to 90° with sun heat. As the roots will now be active, inside borders should have a good soaking of water as soon as the berries are fairly set, giving it at a temperature of 80°, which will from the warmth prove a great incentive of root-action. If the outside border is covered with fermenting materials and the temperature falls below 80°, add a few fresh leaves and stable litter, replacing the shutters, but keeping them quite clear of the fermenting materials.

Succession Houses.—Vines treated as advised in former calendars will soon be starting; but continue to syringe twice a day and turn the fermenting materials frequently, alike for liberating moisture and ammonia. If there be no fermenting materials use weak liquid manure for damping the floor and borders; but it must not be used on the Vines, or it will accelerate the production of aerial roots, especially from the rods of Vines somewhat aged, or young ones either if there be little activity at the roots proper. The temperature should range at 55° or a little higher on mild nights, and 60° to 65° in the daytime, allowing an advance from sun heat to 70° or 75°, but with a free circulation of air, especially now that the weather is so mild. Syringing should be discontinued as soon as the bunches are distinguishable, yet a suitable atmosphere must be maintained by damping the floor and walls. Maintain a supply of manure in the reserve ground, so that it may be introduced into the houses in a sweetened condition as occasion requires—small quantities at a time and often.

Early Vines in Pots.—Complete the thinning of these as soon as practicable, and be very careful not to overcrop them, as this is one of the most fatal evils of Vine culture. Afford tepid weak liquid manure freely whenever needed, pouring it on the material placed around the pots after the roots have passed into it, keeping up the bottom heat to 75° by turning and adding to the fermenting materials as necessary. At night 65° is a sufficiently high temperature and 5° less on cold nights, and 70° to 75° by day, admitting a little air at 75°, allowing an advance of 10° to 15° from sun heat, and close early or at 80°.

Raising Canes for Fruiting.—There must not be any further delay in getting cut-backs and eyes into heat which are intended for growing into fruiting canes. When the former have pushed about a couple of inches they should be shaken out and potted in new compost, using 7-inch pots or larger according to the strength of the roots, and place them over bottom heat near the glass.

Grape Room.—Examine the whole of the fruit at least twice a week, removing all decayed berries, and if the Grapes show any disposition to mould or other decay light gentle fires early on fine dry mornings and ventilate freely. Ventilate on all fine days, keeping the room quite close in damp weather.

FIGS.—*Early fruited Trees in Pots.*—These have had the advantage of unusually mild weather, and have made great progress without our having to resort much to fire heat. The trees have had the benefit of a bed of fermenting materials; these should be added to as necessary, so as to keep the heat steady about the pots at 70° to 75°. Stopping must be attended to, and where trees are aged close stopping will be needed, pinching the young growths at the fifth or sixth leaf; but where the trees are extending no more stopping need be practised than is necessary to form symmetrical trees, and on these the finest fruit will be produced. When the trees have grown to the extent above indicated the night temperature should range from 55° to 60°; 65° to 70° by day by artificial means, and 10° more with a bright sun. Commence ventilating a little at 70°, increasing it with the sun's power, but be careful not to admit cold draughts of air directly upon the foliage. Syringe the trees and walls copiously twice a day, as red spider will assuredly appear if there be any neglect in this. Give liberal supplies of tepid liquid manure as necessary, for if there be any deficiency so as to cause a check the effect on the first crop of fruit will be fatal.

Trees Planted Out.—The treatment advised for early houses will apply to successions, whether the trees are planted out or in pots. In the case of those planted out the borders should be well mulched with decayed manure, and supplied with tepid water repeatedly until every particle is thoroughly moistened down to the drainage.

Late Houses.—The trees must be thoroughly cleaned, also the houses, and everything prepared for starting. Every particle of the wood must be thoroughly washed with soapy water, 6 ozs. to a gallon, and afterwards dress with some approved insecticide, observing great care in dressing the young wood, as the embryo fruit is easily injured. The old mulching should be removed and fresh supplied.

Raising Young Trees.—If it be desired to increase the stock of young trees, cuttings or eyes inserted now and plunged in bottom heat will make good plants for potting at the end of the season of growth. For making trees with clean straight single stems of any required eyes are the best, and they do not give any trouble from underground suckers. Brown Turkey and Negro Largo with White Marseilles are fine for any purpose.

Melons.—If sown as advised in a previous calendar, and attended to as advised, they will now be in rough leaf and will need a shift into 5-inch pots, and be again plunged in the pit close to the glass, and a small stick placed to each of those intended for training to trellis and secured thereto, whilst those intended for pits or frames should be stopped at the second rough leaf, and may be planted out as soon as the planting medium is prepared. Melons delight in a stiff loamy soil with an admixture of old lime rubbish or charcoal to keep the soil porous. A ridge or hillock should be formed along the centre of the pit or frame, or in the middle of each light about 10 inches deep, the soil being made firm, and should be in a moist condition, so as to lessen the necessity for watering in the early stages of growth. One plant is ample in a light, unless the lights are above the ordinary size, when two plants may be placed in each, one to be trained to the front and the other to the back. See that they are properly moist before turning them out, and make the soil firm about the plants. A little soot in a circle about the plants will save them from the ravages of slugs. If the bottom heat is obtained from fermenting materials the plants should not be placed out until the temperature has fallen to 90°, whilst if from hot-water pipes keep it steady at 80°. The top heat should be 65° at night, 70° to 75° by day, with a rise of 10° to 15° from sun heat. Keep up a good heap of fermenting materials in a proper state of fermentation for making up new beds, or prompt application to beds or lining when such are necessary. Sow seed for succession.

Strawberries in Pots.—Mild weather has greatly assisted the progress of the plants. Very little fire heat is necessary for newly started plants, which is of great benefit up to the time the fruit is fairly set and swelling. See that there is no trace of mildew, and ventilate promptly even in dull weather if the air be mild. The air of the house should be kept comparatively dry when the plants are in flower, and examine the blossoms when the sun has been out some time; dusting them with a brush of camel's hair to assist fertilisation. When set and swelling raise the temperature to 60° or 65° by artificial means, and 10° to 15° from sun heat, and close early with plenty of moisture in the house. This will cause the fruit to swell quickly to a good size. Thin the fruits, removing all that are deformed as well as the small—a few good-sized fruit being better than thrice the number of small. The plants must never want for water. Examine them twice daily, and give liquid manure two or three times a week in a tepid state. When the fruit commences ripening keep a drier atmosphere and a rather drier condition of the soil. Plants stored in pits or frames should be looked over frequently and given water when there is the least indication of dryness. Admit air abundantly.

PLANT HOUSES.

Aerides, Vandas, and Saccolabiums.—These plants grow well in baskets suspended from the roof of the stove, in fact no better position can be accorded them. Many grow these plants in pots in the warmest house; but where room is limited and the flowers are required to be cut they are best grown in baskets. Even in this condition they can be arranged amongst other plants while in flower if thought desirable. These plants may now without further delay be examined and given larger baskets if they require them, or may have the material surrounding them removed and fresh supplied. If the roots of any of these kinds cling tenaciously to the old baskets, remove only such as can be done without injury to their roots. In preference to breaking the roots by removing them from the baskets in which they are growing place them as they are into others of a larger size. The whole of the potting material should be removed from amongst their roots and fresh given, for these plants dislike decomposed matter about their roots, and in such a state will not long remain healthy. The baskets should be liberally drained with broken pots and lumps of charcoal, the remaining portions being filled with living sphagnum moss only. While growing these plants require liberal supplies of water, and the moss in one season becomes sufficiently decomposed for removal. We remove the whole carefully and wash out the small particles by pouring water into the baskets. Amongst the moss crocks and charcoal may with advantage be used. These plants delight in sending their roots through the baskets into the moist atmosphere of the house.

Oncidiums.—The majority of these that require heat do well in the stove in baskets and while at rest can be removed to cooler quarters. Such species as *O. flexuosum*, *O. lanceanum*, and others that have commenced making fresh roots may be attended to. In removing them to larger baskets, exercise the same care as advised above, and do not injure their roots more than possible. Many of these plants delight in sending their roots outside the baskets, and with such varieties no attempt should be made to place them inside; on the contrary, allow them to grow as naturally as possible. If the whole of the compost is removed every second year it will be found sufficient. They should, however, be examined every year, and a

little fresh peat moss or charcoal added as the case may be. This is the mixture we use for these plants, allowing the former to predominate; but all the small particles should be shaken out and only the fibre used. Charcoal must be used in lumps freely. In renewing the compost where required the roots clinging to the crocks or charcoal need not be disturbed, as the old peat and moss may with care be removed.

Phalænopses.—Many of our plants suspended in the stove have already commenced root-growth, and these will be seen to at once. Small plants of these that have not hitherto been in baskets are given 6-inch baskets to commence with. These are nearly filled with crocks and charcoal, which are covered with living moss elevated in the centre, and then the roots well covered with the same material. The whole of the moss is picked carefully from amongst the roots annually and fresh employed. Care must be taken that the moss has been in the house in which the plants are growing to become warm before being used, or very serious results may follow. The plants after this operation must be kept well syringed to encourage the moss to grow, and if this is accomplished they will receive the moisture they require. If woodlice have become established in the baskets destroy every one if possible when removing the moss from amongst their roots, for no better opportunity will ever occur. These insects, if allowed to exist in the baskets of these plants, soon destroy the foliage when young and tender, and are also very fond of the flower spikes when in the same condition.

THE BEE-KEEPER.

SYRIAN BEES.

I WILL give my experience with Syrian bees, and as I do not rear queens to sell I have "no axe to grind." When I first heard of the Syrian bees I was anxious to try them, so I sent to Mr. Jones for two queens, which I received in July, 1881, and, as it was too late in the season to test them thoroughly, I concluded to keep them until I was satisfied whether they were inferior or superior to other races of bees.

In the fall of 1881, when I prepared them for winter, they were stronger in number than the rest of my bees. They stood the winter well, and in the spring of 1882 they were more populous than the Italians and albinos; so I thought that I would rear a few queens for my own use, and I succeeded in rearing some very fine queens, and as I did not put on any boxes in 1882 I did not get any surplus honey; but when I prepared them for winter in the fall of 1882 I found nearly every colony had twice as much honey as they needed to winter on, having the brood-chamber full, with the exception of two or three combs, which was about half full of brood.

The winter of 1882-83 was hard on bees in this part of the country, but my Syrians came through in good condition; they wintered better than the rest of my bees, excepting the Cyprians, which I had one and a quarter mile from my home apiary.

Nearly all the rest of my bees (Italians, albinos, and hybrids) were weak and in a deplorable condition, so I had to take frames of hatching brood from the Syrians to build up weak colonies, and when the combs were full of brood, and the young bees commenced to gnaw through, I took them out and exchanged them with the weak colonies the second time.

After taking all the brood out twice, it did not seem to affect them at all; and, by the time white Clover was in bloom, they were stronger than the Italians and albinos, and they commenced to work in the sections two weeks before the Italians (I did not take any brood from the Italians). The Syrians cast larger swarms, besides gathering more surplus honey than the Italians ever did for me.

The young colonies filled eight-frame Langstroth hives, and stored more honey in the sections than did the old colonies of Italians and hybrids, while the albinos and hybrids only filled the brood-chamber, and only gathered enough honey to winter on this fall. When I prepared them for winter they all had plenty of honey to carry them through safely, and more.

I find the Syrians splendid honey-gatherers; they work early and late; they carry heavy loads of honey, and there are lots of them. And yet some say they are no good.

The albino bees are not as good as the Italians. I have had them on trial for three or four years, and I know whereof I speak. I never got as much honey from them during all this time as I did this year from one colony of Syrians. I have "weighed them in the balance" and "they are found wanting." They had their day, and must step down and out. I will keep one or two colonies of them just to look at.

One writer says that he would like to see the man "that can tell the difference between the Italians, Syrians, and Cyprians." I find no difficulty in telling one from the other, and even queens fertilised by Cyprian drones produce bees which are readily known from pure Syrians. The general colour, markings, and movement of these bees, to say nothing of their working qualities, are sufficient to enable one to distinguish the races readily, but there are also other points in which they differ.

The bees present a decidedly grey colour, though the abdomen has a ringed appearance. The ground colour is a greyish black; the body, before the fuzz is worn off, being very light; the grey-coloured fuzz is very thick on the thorax, and the latter half on each segment of the abdomen, especially those after the yellow bands, are thickly set with

light-coloured fuzz, giving them a striking appearance. The three yellow bands are very prominent and yellow.

The shield between the wings is not as prominent as with the Cyprians, though still visible. The Syrian drones are very fine, large, and vigorous, and have an exceedingly thick coat of whitish and blue-tinged "fuzz" over the greater part of the thorax, especially on the sides, and a very noticeable amount on the abdomen. In proportion to their bodies, I think their wings are somewhat larger than those of the Italians or Cyprians.

The Syrian queens are wonderfully prolific, laying an incredible number of eggs in a season, and the bees build less drone comb than the blacks or Italians; they protect their stores against robbers with such determination that they often catch the robbers on the wing around the hive, and punish them before they even get time to alight; in fact, they are robber-proof.

They are swift on the wing, and no race of bees will fly more rapidly or further (when necessary) in search of honey than will the Syrians. They have been known to fly six and a half miles to obtain pasturage. I have seen my Syrians two and a half miles from my apiary; how much further they went I am unable to say. As honey-gatherers they are not excelled.

The Syrians winter better than the Italians, come out better in the spring, and do not dwindle so badly. Everything considered, I regard the Syrian bees as the most superior race ever imported into this country, and that, when they have been subjected to the same careful selection and breeding as have the Italians, they will command more prominence than have the Italians. I would most emphatically affirm that the Syrians have a larger number of the necessary qualities than any other race or strain of bees. I will admit that I am using strong language, but my experience with this race, regarding queen-breeding, honey-gathering, and wintering, fully warrant me in making the statement. I am not prejudiced against any race of bees, and the above is an honest description of the Syrians as I see them.—L. A. LOWMASTER (in *American Bee Journal*).

TRADE CATALOGUES RECEIVED.

Alfred Watkins, Bishop Stortford.—*Catalogue of Flower and Vegetable Seeds.*

Smith & Simon, St. Enoch Square, Glasgow.—*Garden Cultural Guide.*

Bruant, Poitiers, Vienne, France.—*Catalogue of New Plants.*

Ireland & Thomson, 20, Waterloo Place, Edinburgh.—*Catalogue of Vegetable and Flower Seeds.*

Hooper & Co., Covent Garden.—*Spring Catalogue.*

William Rumsey, Waltham Cross.—*Catalogue of Select Seeds.*

Stuart & Mein, Kelso.—*Amateurs' Guide and Spring Catalogue.*

Stephen Brown, Weston-super-Mare.—*Catalogue of Seeds.*

Barr & Son, 12 and 13, King Street, Covent Garden.—*Catalogues of Vegetable and Flower Seeds.*

Hogg & Robertson, 22, Mary Street, Dublin.—*Catalogue of Flower and Vegetable Seeds.*



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (X., Loughall).—You will find all the information required in the "Rose Garden," by Mr. W. Paul, published by Kent & Co., 23, Paternoster Row, London, price 7s. 6d. (W. H.).—Your question is so ambiguous that we cannot tell what you require. Do you need a book giving the botanical characters of British or general plants, or do you desire one that will enable you to describe plants by botanical terms? (A. M.).—The first two books you name were, we think, published by Messrs. Groombridge & Son: we do not know the price, but they can be obtained through a bookseller. The other work we suspect has long been out of print.

Garden Implements (Jay).—As we have repeatedly stated, it is contrary to our rule to recommend any implements, seeds, or firms as the "best." We can do nothing so invidious. You can obtain what you want in the town from which you write.

Rose Leaves Withering (Nemo).—A serious attack of mildew is quite sufficient to cause the discoloration of the leaves, some of those you have sent being covered with the parasite. The leaves further indicate that the plants are destitute of vigour, and probably either the roots are defective or

the soil unsuitable. Give fresh soil if needed, continue the use of sulphur, ventilate the house judiciously, and with brighter weather your Roses may be expected to improve.

Holly Leaves Falling (*J. C., Frodsham*).—In a garden that we recently visited the gardener confidently attributed the defoliation of the Hollies to the salt that was conveyed in the boisterous gale of some two months ago. He stated that salt could be scraped off the windows of his cottage and the leaves of the evergreens, and the latter commenced casting their foliage soon afterwards. The situation is twice the distance from the sea of that from which you write. This may not be the origin of the evil in your case, but the matter is worth your consideration.

Propagating Lapagerias (*H. W.*).—These plants are propagated by pegging the stems in a bed of peat and sand at a sufficient depth that about the half of each leaf appears above the surface in a vertical position. The bed being kept moist roots will be emitted from most of the joints, and the growth from each leaf axil will form a plant. It is not necessary to notch the stems.

Pinching Peach Tree Shoots (*Idem*).—We practised the plan long before the work to which you allude was published, and found it answer well, affording abundant crops of good fruit. As a rule, however, this was not quite so large as when young wood was retained, and regular and systematic attention is requisite for success. First try a modification of the plan by pinching a few shoots instead of disbudding so severely. This combination system answers admirably when intelligently conducted, as we feel sure it will be in your hands.

Building Flues and Chimneys (*D. M.*).—Your letter is practically unanswerable—that is to say, it cannot be answered usefully, as the price of such work varies with the differing price of materials and labour in different districts. In no way can you ascertain the cost so nearly as by stating the particulars to local tradesmen, and ask them to supply estimates for completing the work.

Trees on Tarred Fence (*E. M.*).—We have grown Pears against a tarred fence for years with the most satisfactory results, the boards being perfectly dry before the trees were planted. We do not apprehend any danger whatever in your case, the tar having been applied last summer. If any persons can adduce authenticated instances of failure under the circumstances indicated we will record them.

Disbudding Vines (*A Young Beginner*).—We do not approve of denuding the lower part of the rods—that is, the part from the ground to the base of the rafters—of buds, as by permitting the laterals to extend we promote the thickening of the stem; and if the stems are contracted, as we often see them, the sap vessels are contracted also. Unless the joints are very short and the eyes or buds are less than 6 inches apart we allow them to grow, at least until they meet across the space between the Vines. This strengthens the stem, and the leading cane grows as freely as if the side growths were rubbed off. If closer together than the distance indicated every alternate bud may be removed, and the foliage on the laterals that will then extend will develop the better. If the Vines are very strong one bunch on each may be permissible, not otherwise.

Liquid Manure for Pelargoniums (*A. B.*).—As you have used Clay's fertiliser in potting you must be careful in the use of liquid manure, or you may have far more foliage than flowers. That manure is excellent as a top-dressing and watered-in for Pelargoniums, and is largely used in that way by the best growers. Clear soot water is good for imparting colour to the foliage and flowers. So long as the foliage is of a deep green colour liquid manure will not be needed.

Carpet-bedding Designs (*W. P.*).—We are not aware that such a variety of designs can be found as in the back numbers of this Journal. Several, however, are included in the "Parks and Gardens of London," published at this office, price 5s., post free 5s. 6d. The work also contains instructions for raising most of the plants that are employed in carpet bedding. Mr. Graham, Hampton Court, prepared a useful manual on this subject, but we do not know whether copies are still to be had.

Peas for Small Garden (*Willing to Learn*).—As an early variety sow William the First; to succeed it Gladiator, Marvel, Maclean's Best of All, and Sturdy, all of which are excellent for successional sowing, and all are abundant producers. Very little economy results from sowing cheaper kinds, which, however good for market purposes, are not appreciated by those of refined taste. You are acting wisely in seeking to improve your clay soil by burning the subsoil. The Peas are all of medium height.

Rabbits' Dung as Manure (*Idem*).—Why should not the dung of the rabbit be as good manure as that of other herbivorous animals? We know the prejudice that existed against it among agriculturists from the fact that these animals are very injurious to their interests, and from the grass not growing strongly about their burrows, which is attributed to the baneful influence of their dung, but is really a consequence of being closely cropped. Remove the rabbits, and the grass or other crops will grow much more luxuriantly there than in any other part of the land adjoining. It will be useful in a garden for any description of crop, and would be best kept under cover; indeed all manures are, as they then have not much of the fertilising matter washed out by rains, as is the case when they are exposed.

Aphis on Auricula Roots (*J. Luck*).—Unless the plants were very seriously affected we should hesitate to shake them out now. Try the effects of paraffin on a plant or two and note the results. Mixed at the rate of an ounce to the gallon of water we feel confident it would not injure the plants, while it would check, if not destroy, the insects. Mr. Llewellyn has stated the plants seem to like a little paraffin rather than otherwise. Moderately used it no doubt acts as a manure, but an excess is dangerous. Mr. Thomson of Drumlanrig has found that, mixed at the rate of two ounces per gallon, and applied to Zonal Pelargoniums, did not do them the slightest injury; and we have used it similarly to Lettuces, which "seemed to like it," while the aphides on the roots were destroyed. The oil can only be incorporated with the water by violent and constant agitation. We are strongly of opinion that water may be given so hot as to destroy the aphis without doing any injury to the roots of Auriculas, and if we had any plants infested we should try the hot-water remedy, commencing at a

temperature of 150°. Will you try it with a plant or two and let us know the results? The average value of an acre of well-grown Black Currants is probably about £40.

Preserving Flower Sticks (*W.*).—As the paint would perhaps cost a shilling or two, and therefore be too expensive, you might try paraffin. It is a good wood-preserver, but the stakes would not have such a neat appearance as if covered with green paint. If not dressed with anything the wood would last much longer than the points of the sticks inserted in the soil if these were not charred or creosoted: and this should be done to a part that would be fully an inch above the surface of the earth, as it is just at the surface where decay is most rapid, and not deep in the soil.

Top-dressing and Pruning Vines (*Zeno*).—No top-dressings in such a narrow border as yours would equal a covering 5 or 6 inches thick of rich farm-yard manure. Failing this, remove the surface soil if you can do so without injuring the roots, and add 3 or 4 inches of good fresh loam; then as the Vines need support give them liquid manure. This may consist of sewage and urine diluted with five or six times its volume of water, with soot and guano water occasionally—a change always being beneficial. Guano is good as a top-dressing sprinkled on the surface at the rate of an ounce to the square yard occasionally; so is superphosphate of lime, two ounces per square yard. Clay's fertiliser is good used the same as guano, and Thomson's Vine manure excellent. Apply what is the most convenient, and keep the border moist from top to bottom. You have erred in deferring the pruning so long, and if your Vines are strong and healthy they may bleed excessively, as especially if Thomson's styptic or painter's knotting be not applied before the sap commences to move. Instead of pruning when the Vines are starting we prefer disbudding—removing the buds from that portion of the laterals usually cut off, and the laterals themselves after the growths from the base have developed their foliage. Read Mr. Iggulden's article on this subject in our issue of December 20th, last volume.

Planting Vines (*F. J.*).—A good time for planting Vines is when they have fairly started into growth—that is, have produced shoots 1 or 2 inches long; but they will succeed if planted when the buds are distinctly swelling, and protrude through thin scaly covering. This would perhaps be the safest guide for you to follow as you are not an expert in the work. The Vines must be obtained when the buds are quite dormant, or they would almost certainly be dislocated in transit. The Black Hamburgh is the most useful Grape for amateurs. The Black Alicante is later, free and showy, but the fruit is not of high quality. Answers to your other questions must be deferred, but a reply will be given in ample time to be of service.

Temperature for Cucumbers (*S. F.*).—You ask "If it is of any use trying to grow Cucumbers in a house in which over 55° at night cannot be maintained, increasing to 80° in the day with sun heat?" We have never seen a house exactly of the kind indicated. If you mean that you cannot maintain a night temperature of over 55° at this period of the year we fail to see that you can insure an increase to 80° with sun; while in summer, when you can insure the day temperature indicated, a night temperature exceeding 55° can be easily maintained, often for weeks, with an occasional interruption when the weather happens to be unusually cold. It is not much use your trying to raise Cucumber plants now in your house, but if you can maintain a minimum night temperature of 50° in January you will have no difficulty in increasing it as the season advances to the proper degree for growing Cucumbers. We have never had better crops nor finer fruit than from a house in which no fire heat whatever was employed, but planting was not done until June, and then the plants were very strong, having been raised in a frame. They were 18 inches high, with stems as thick as your finger, and proportionally stout foliage, the 6-inch pots being filled, but not crowded, with active roots. They were planted in turfy loam placed on a bed of fermenting material 3 feet high, and the growths trained up the roof. At that period of the year the weather was so warm that there was no difficulty during bright days of maintaining a temperature of 90°, and with a moist atmosphere the plants grew with great freedom, and by closing the house when possibly at from 95° to 100°, with much moisture, a night temperature of 65° was frequently maintained; but even if it fell to 55°, and now and then even lower, such vigorous plants received no appreciable check, but only a temporary rest, and they continued fruiting till October in the most satisfactory manner. Thus you will perceive the question of growing Cucumbers in what is a cool house now resolves itself into a question of judgment and management—waiting until the house is naturally warmer, then cultivating the plants well. Any house in which a night temperature of 45° can be maintained in winter may with the greatest ease be converted into a stove in summer by judicious ventilation; and if the requisite light and moisture are provided, Cucumbers may be grown in the structure as well as any other stove plants.

Zonal Pelargoniums not Flowering (*S. F.*).—In the first place your plants were pinched too late, and in the second they had not nearly sufficient light, arranged so far from the glass, and placed in the house, no doubt, before the leaves were off the Vines. Young plants grown generously during the summer in the open air so long as the weather remains favourable, then given the shelter of frames towards the autumn, will flower with great freedom in winter in a very light house with a temperature ranging between 50° and 60°. The end of July is late enough for topping the shoots, but the flower stems should be pinched off as they appear until late autumn. By pinching the shoots in September only small growths can result, and these never produce a succession of fine trusses. Some varieties flower much better than others during the winter, and at least one of those you name is bright and useful during the dull months of the year. We allude to Vesuvius, but it fails when the plants are not well prepared and then placed in an unsuitable house. A position under Vines is not suitable, nor can the plants be expected to succeed so far from the glass as is indicated by the sketch before us. Cannot you make a flat stage from the front of the house over the Vine border and flue, and as wide as is convenient? If, as we presume is the case, the front of the house is glazed, good plants would flower there in winter if the temperature did not fall below 50°, but not if they are densely shaded by the Vines for a month in the autumn.

Propagating Lombardy Poplars (*E. J. C. B.*).—You must employ well-ripened wood of last year's growth for cuttings, which should be cut into lengths of not less than 9 inches or 1 foot. The last is preferable if the

wood for the cuttings is abundant. The sooner they are inserted the better; any time will do for this operation after the fall of the leaf in autumn, but it should not be left until too late in the season or success may not follow. The cuttings of Poplars are generally inserted on ground sufficiently far apart so that they will have room to grow for two years, when they are of a suitable size for transplanting singly if they have done well. You have been rightly informed about leaving two eyes above ground, the best being selected when they have fairly started into growth and secured to stakes to keep them straight and to save them from being broken by the wind. We cannot inform you where you can obtain seed of Paradise stocks, these stocks being raised from cuttings. Even if you could obtain seed many worthless varieties would probably be the result.

Melons for Frame Culture (Amateur).—Monro's Little Heath Melon is of easy culture, but only second-rate in quality; and you are right in attempting the cultivation of some other superior sorts. The probable cause of your failure with Mann's Hybrid was insufficiency of heat, more especially bottom heat. All Melons, with the exception of Little Heath and the old Cantaloupe, require a bottom heat not lower at any time than 65°, while from 70° to 80° will better suit them. The top heat to be at much the same figures. Your soil also may have something to do with the failure. Good clayey loam taken from immediately under the turf of a pasture, with a little slaked lime added, will grow good Melons. It should be made very firm, and never be allowed to become dry. The Victory of Bath is still one of the best for frame work, being free and good, but not very handsome. Hero of Lockinge is rather small, but first-class in every other respect. If a larger green-flesh variety be preferred, then try Eastnor Castle. Blenheim Orange is the best scarlet-flesh variety, and is well adapted for frame culture.

Statice profusa (Salto).—Although this and *S. Holfordii* are greenhouse plants, yet, if the temperature of the house is very low, they make remarkably slow progress. If the plants are young, and large specimens are desired, place them in a stove or intermediate house, a night temperature of 60° being very suitable for them while growing. If healthy plants are started with—say, early next month—fair-sized examples can be produced in a season by the aid of warmth and moisture. The young plants should not be tall to start with, but dwarf, with their foliage down to the soil. The last-named is a much stronger-growing variety than the former, and will not branch so freely unless measures are taken to compel it to do so. Assuming they are in 5-inch pots, when these are fairly filled with roots transfer them to pots 2 inches larger, and when the roots have taken well to the new soil pinch out the centre of the plants to compel them to break back. Until the plants are placed in pots sufficiently large they should never suffer from insufficient root room. The soil best adapted for them is rich fibry loam, a little leaf mould and decomposed manure, charcoal broken moderately fine, and a liberal quantity of coarse sand may be added to keep the compost porous. While growing, these plants require abundance of water, but care must be exercised in giving it, especially for a time after potting, and until their roots are working freely; and at no time must the soil be saturated, or the foliage will shrivel and fall. During winter, until the plants attain a specimen size, do not keep them in a lower temperature than 45° to 50°, and as soon as the season for growing has again advanced push them forward in the temperature named above. Do not maintain a close confined atmosphere while the plants are growing in heat, or they will soon be unhealthy. Give them air daily when favourable, except for ten or fourteen days after potting, until the roots commence working, when they are better kept close. During bright sunshine in summer light shade is necessary. Particular watch must be kept for thrips and other insects, which, if allowed, quickly arrest the growth of the plants. The plants drop their leaves from various causes, but we cannot indicate the exact cause in your case, as you afford no information to enable us to do so. The soil may be sour; if so, remove carefully a portion of it and repot in clean well-drained pots in the compost recommended, place the plants in heat, and water carefully until root-growth commences.

Plant Groups in a Conservatory and Corridor (W. S., Beckenham).—You are quite right not to have staging, and the borders round the sides show clearly that the best method of arrangement for the conservatory will be to plant the borders with sufficient tall-growing shrubs and plants to eventually fill the space without crowding, the number being determined by the size of the borders; or plant thickly for an immediate effect, taking care to give the best positions to the permanent plants, and subsequently remove the others as may be necessary. If you have other houses affording a supply of flowering plants in due succession throughout the year, then thin planting would afford space for groups of flowering plants in pots, so that the house could be kept bright by frequent relays of fresh plants. The permanent plants should be a mixture of such Palms as *Corypha australis*, *Lantana borbonica*, *Phoenix reclinata*, *P. dactylifera*, *Sabal Blackburniana*, *Chamaerops excelsa*, *Areca sapida*, *A. rubra*, and *Seaforthia elegans*, all answering well in a greenhouse temperature. Then there are *Dracaena australis*, *Cordylina indivisa*, *Yucca aloifolia*, *Y. aloifolia variegata*, *Y. filifera*, *Y. quadricolor*, *Phormium tenax Veitchii*, *Aloe prolifera*, *Araucaria excelsa*, *Musa Ensete*, *Pittosporum Tobira variegatum*, all with ornamental foliage; and as flowering shrubs *Camellias* are unequalled, and of which we name a dozen good varieties—three white: *alba plena*, *Mathotiana alba*, and *fimbriata*; three striped: *Lavinia Maggi*, *Bonomiana*, and *tricolor*; three crimson: *Reticulata flore-pleno*, *Bealii*, and *Madame Lebois*; three rose: *L'Avenir*, *Valtevarado*, and *Sarah Frost*. Indian *Rhododendrons*, too, are worthy of a place; but although they keep healthy under the shade of creepers, yet they do not then flower so freely as *Camellias*. *Javanicum*, *Taylori*, *Prince Leopold*, *Duchess of Edinburgh*, *jasminiflorum*, and *fragrantissimum* are all good, and there are many other varieties if you can find space for any of them. Give those which you plant as light and airy a position as possible. *Selaginella Kraussiana* makes a charming green fringe to conservatory beds and borders, imparting to the outlines an attractive, soft, yet bright aspect. The front outlines of your borders need not be flat or angular, but might pleasingly swell gently into a series of semicircles. In the corridor two methods of treatment present themselves for choice—either formal borders along each side, in which *Roses* are planted to be trained up under the roof, with *Ferns* not upon a uniform flat surface, but upon mounds and in hollows, with two or three *Tree Ferns* springing boldly up on each side. A few blocks of wood covered with moss bound on loosely with wire, enclosing a little soil upon

the wood, with *Begonias*, *Iresines*, *Selaginellas*, *Tradescantia*, and *Panicum variegata* planted in the moss, and a *Lomaria gibba* at the top, tell well among the *Ferns*, imparting colour, brightness, and variety; and overhead pendent from the roof there may be hanging baskets or wire containing *Selaginella caesia*, so lovely with its long bluish-green trailing growth; or the corridor might have a winding path among raised beds of rockwork, with plenty of nooks and pockets for *Ferns*. There will be ample space at the garden entrance for a fine specimen *Tree Fern* on each side the door.

Names of Plants (An Inquirer).—The shrub with yellow flowers is *Chimonanthus fragrans*, the other is *Swainsonia galegifolia*. (C. W.).—1, *Nephrolepis davallioides furcans*; 2, Some particulars respecting the habit or flowers are necessary to aid us in naming this; 3, *Alocasia metallica*.

COVENT GARDEN MARKET.—JANUARY 23RD.

PRICES remain with no alteration.

				FRUIT.							
				s. d.	s. d.	s. d.	s. d.				
Apples	½ sieve	1	6	to 5	0	Nectarines	dozen	0	0	to 0	0
"	per barrel	0	0	0	0	Oranges	100	6	0	10	0
Apricots	box	0	0	0	0	Peaches	dozen	0	0	0	0
Chestnuts	bushel	10	0	0	0	Pears, kitchen ..	dozen	1	0	1	6
Figs	dozen	0	0	0	0	"	dozen	1	0	5	0
Filberts	lb.	0	0	0	0	Pine Apples English ..	lb.	2	0	3	0
Cobs	per lb.	1	3	1	4	Plums and Damsons ..		0	0	0	0
Grapes	lb.	1	6	5	0	Strawberries	lb.	0	0	0	0
Lemon	case	15	0	21	0	St. Michael Pines ..	each	2	0	8	0

VEGETABLES.

		s. d.		s. d.				s. d.		s. d.	
Artichokes	dozen	2	0	4	0	Mushrooms	punnet	1	0	1	6
Beans, Kidney	100	1	0	0	0	Mustard and Cress ..	punnet	0	2	0	0
Beet, Red	dozen	1	0	2	0	Onions	bushel	2	6	3	3
Broccoli	bundle	0	9	1	0	Parsley	dozen bunches	3	0	4	0
Brussels Sprouts ..	½ sieve	1	6	2	6	Parsnips	dozen	1	0	2	0
Cabbage	dozen	0	6	1	0	Potatoes	cwt.	4	0	5	0
Capsicums	100	1	6	2	0	" Kidney	cwt.	4	0	5	0
Carrots	bunch	0	3	0	4	Rhubarb	bundle	0	4	0	0
Cauliflowers	dozen	2	0	3	0	Salsify	bundle	1	0	0	0
Celery	bundle	1	6	2	0	Scorzonera	bundle	1	6	0	0
Coleworts	doz. bunches	2	0	4	0	Seakale	basket	1	0	1	6
Cucumbers	each	1	0	1	9	Shallots	lb.	0	3	0	0
Endive	dozen	1	0	2	0	Spinach	bushel	2	6	3	6
Herbs	bunch	0	2	0	0	Tomatoes	lb.	0	3	0	10
Leeks	bunch	0	3	0	4	Turnips	bunch	0	3	0	0
Lettuce	dozen	1	0	1	6						



THE WELSH BREED OF CATTLE.

It is notorious that amid the enthusiasm of breeders in reference to other breeds, the Black Cattle of Wales have been almost as much disregarded as though they did not exist, and it is therefore our intention to give the best information respecting the style and characteristics of the several variations of the breed to be found in the different districts in Wales. The Black Cattle are natives of the counties of Pembroke, Carmarthen, and Cardigan, and are subdivided into Castle-martin and Dewsland breeds. From Cardiganshire they also extend along the North Wales coast up to Anglesea. We learn from an article in the "Live Stock Journal Almanack" of the present year that Mr. Richard Harvey, in his preface to the "Welsh Cattle Herd Book," says, "The cattle are generally of a black colour, and frequently with white marks on the udders of the cows, also a few white hairs at the end of the tail. Sometimes a few white hairs are mixed up with the coat, but this is not always hereditary, and only comes out occasionally. A brown-black, approaching chocolate, is considered a good colour. Occasionally there are some cows striped red and black, also some quite white, with black ears, muzzles, and feet, but these are becoming very rare. The late Lord Dynevor had some very fine specimens of the white breed near Llandilo, and the five-year-old oxen were very fine animals. The horns should be of a rich yellow. They are generally tipped with black, and do not come out yellow to the very end like the Herefords. There is a different pitch of horn for bulls and cows. A bull's horn should be low and well spread, the cow's narrower and the pitch more upright. The steers and oxen take more after the bull. This description applies in a great measure to the Anglesea cattle. They are, however, broader on the back and shorter in the legs with more hair; the heads are heavier and horns not so yellow.

Mr. Morgan Evans, who is one of the best authorities as a breeder of Welsh cattle, took exception to portions of the above description by Mr. Harvey. He says he never saw a black cow with a brown face. He has seen cows in Pembrokeshire with a

white line along the back, and with white along the belly as well; but he prefers a rich brown-black, which is a favourite colour with some breeders, and he has great partiality for cattle of this hue. They are generally more kindly feeders than those which have coal-black coats. The brown-black, however, should not be approaching chocolate, for there should be no reddish tinge—a sure sign of cross-breeding—and such animals usually lack quality. The coat should be long and wavy, neither short and crisp nor very curly. A brown-black wavy coat is to be preferred to any other. A white udder and a grey or white tuft of hair at the end of the tail is the only deviation from the self-colour, black, or brown-black, admissible. The natural characteristics of the breed may be described as narrow on the shoulder and chine, slack on the loins, an inclination to be high on the rump, and flat-sided. The special characteristics of the blacks which make them so valuable, are hardness of constitution, aptitude for dairy purposes, and docility.

The shape of these animals over the shoulder top and chine is, we have always considered in our experience, the true characteristic of a good milking capacity, no matter in what breed of cattle, for as a rule where cows are heavy in the fore-quarters, with heavy pads of flesh on the shoulder top, they cannot be made good milkers by any known system of feeding or management. We must therefore conclude that as these Welsh Blacks are described they may by special care in selection and management be made to produce cattle in one case excellent milkers, and in the other where perfect shape and tendency to fatten is required, good graziers and of early maturity. Further on we shall produce evidence to justify these conclusions by some of the best judges of the breed and the most intelligent managers not only for home use but also for the production of prize-winning animals.

Let us now refer to them as dairy stock ever under the most adverse surroundings, such as the food afforded by the mountainous districts of Wales. In the first place they must be extremely hardy and possessing the strongest constitutions such as we find in no other race of cattle kept, and enduring hardships in the same way. There can be no doubt on the point if we consider the practical treatment of rearing calves, and the hardships they endure before they are old enough to breed and contribute to the milk pail; the greatest astonishment is connected with the fact that they are ever capable of becoming useful dairy stock at all, after having been reared under such hardships as they have to contend with. No cattle can withstand cold and wet so successfully as the Welsh Blacks. Their native home is in a stormy clime, and they roam in the fields, their only shelter being the earth banks of the enclosures and the mountain sides. Cows and heifers are frequently allowed to calve in the tempestuous atmosphere of the western districts knee deep in snow, with apparent comfort and without injury to their offspring. But to ascertain the value of animals with such constitutions and capabilities, let us compare them with those animals which are said to rough it in the New Forest and other commons or districts such as the commons of Surrey, Hants, and other Heather districts, for these districts can claim only a nondescript kind of cattle, although the feed on such lands are of the poorest. Yet the climate of the home and southern counties is greatly superior to the coast districts of Wales, and it seems most extraordinary that owners of such cattle should continue to rear and use them for dairy purposes. For although fairly productive of milk, yet when barren from accident or otherwise they are completely worthless; while in Wales the black cattle after undergoing such hardships as we have described both in food and climate, any barren animals after leading a beneficial life for the owner as dairy stock are actually capable and frequently are fed and converted into excellent carcasses of beef, and sometimes they are exhibited in the district cattle shows with success after a judicious course of feeding and management.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Should the late mild and comparatively favourable weather last the seed time for spring Wheat may be continued with a fair prospect of success, for the land in most cases, although rather heavy on strong clay soils, is yet workable and suitable for Wheat-sowing. Upon the other hand, Beans and Peas may now be sown with a fair prospect, especially where the nature of the soil is undulating on the surface and friable in working. At the same time we should take or select the driest soils for Peas and the heaviest land for Beans. The latter, however, are uncertain croppers, and we prefer to drill with the Beans either small Maple Peas or winter Vetches, in which case if the black aphides should attack the Beans there is a probability of the Peas or Vetches succeeding and insuring a crop. In the event of the mixed corn being drilled at 20 inches or 2 feet distance between the

rows the land can be kept clean by horse-hoeing between the lines, and hand-hoeing and weeding in the lines until the Peas or Vetches begin to spread, after which they will meet each other across the drills and effectually overwhelm the weeds, but especially the annuals. Barley and Oats may now be sown with a fair prospect of a good crop if the land is in good heart and condition; if not, artificial manures should be drilled with the seed. Most manure merchants keep for sale mixtures adapted for the purpose, but we prefer to mix for ourselves such manures as we have found the best for this purpose, for Barley using 2 cwt. of bone superphosphate and 1 cwt. of Peruvian guano per acre. For Oats or drege, however, there is nothing equal in our opinion to sowing broadcast from 1½ cwt. to 2 cwt. of nitrate of soda per acre, according to the previous condition of the land, especially as it is now so much cheaper than previously. The pastures may some of them soon be dry enough to bear the horses and carts without tracking injuriously, in which case the sooner the dung or composts are laid out the better; if not, artificial manures may be applied with great advantage, especially in February, when we generally obtain a sufficient rainfall to increase the benefit to be derived from artificial manure dressings. It has been stated by some agricultural chemists that dressings of artificial manures cannot be depended upon to fully operate upon pasture land; but our experience is quite the reverse, for we find that 3 or 4 cwt. of bone superphosphate and 1 or 2 cwt. of Peruvian guano in admixture is excellent, yet on some dry soils 1 or 2 cwt. of nitrate of soda instead of guano has been found to answer better.

Hand Labour.—We have men now engaged in planting an orchard—namely, Filberts and the two best varieties of Cobnuts, also fruit trees, of which we are planting nine sorts of kitchen and table Apple trees—viz., Lord Suffield, Blenheim Orange, Wellington or Dumelow's Seedling, Worcester Pearmain, Keswick Codlin, Orange Pippin, Hawthornden, King of the Pippins, and Cellini Pippin. These are being planted on some fine hazle loam, with mild brick-earth subsoil, on south-west aspect, well sheltered from north and east. Some men are employed in the spreading of chalk, grubbing hedges, &c., ditches to be drained. Threshing of corn before the busiest period for labour commences will employ some men, especially in winnowing after the threshing machine. Some machines will winnow corn, &c., simultaneously, but it is rarely the case that the winnowing is so perfect as for every sackful to be alike in sample, at least we have found it to be the case frequently; and this oftentimes induces the miller to grumble, and some will take advantage and refuse to accept it as representing the sample, especially on a falling in the market. This is a very troublesome matter to contend with, and therefore we prefer to thoroughly mix the grain and minnow it carefully to insure a uniform and saleable sample. Although it is extra labour, yet it prevents further trouble in marketing.

Live Stock.—The Down flocks of every variety, either South Downs, Shropshire Downs, Oxford Downs, Hampshire Downs, and their crosses, all are now near to or are in the act of lambing, but more especially the Hampshire and west country Downs, including those bred in Wilts and Dorset. Nothing could be more favourable than the weather has been for all of these during gestation and those which have now brought their lambs, for the whole autumn has been more mild, moist, and forcing for grass than is frequently found to occur in the spring months. This has therefore tended greatly to favour good health and condition amongst not only breeding ewes but all breeds of fatting sheep feeding upon roots on anything like dry friable land, for these have done remarkably well, and it is probable that more mutton was never made upon a given number of sheep fed in the open field upon roots and the accompaniments of good hay, corn, or cake than during the past autumn and up to the present time. This is well for the consumer, as mutton must be more moderate in price in consequence; but it has been and will be much against the grazing farmer who paid high rates for his sheep on the first purchase, and we fear that notwithstanding the short number of sheep stock in the kingdom the farmer will gain but little this winter by fattening his sheep.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain	
1884. January.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday		13	30.501	41.3	39.4	W.	40.0	45.5	34.4	50.8	28.6	—
Monday		14	30.463	42.2	40.6	N.W.	42.8	50.1	39.4	65.2	34.2	—
Tuesday		15	30.582	46.8	45.9	N.	41.9	51.3	41.2	61.8	37.3	—
Wednesday ..		16	30.656	38.0	38.0	W.N.W	42.1	48.7	36.1	49.6	31.1	—
Thursday		17	30.621	40.3	39.5	W.	42.0	48.0	37.3	42.7	37.3	—
Friday		18	30.604	41.4	40.2	N.	41.9	45.7	39.5	46.8	38.0	—
Saturday		19	30.635	44.2	41.6	W.	41.8	46.9	40.3	48.1	38.9	—
			30.580	42.0	40.7		41.8	47.3	38.3	52.1	35.1	—

REMARKS.

13th.—Sharp frost on grass early; fair throughout, but not bright.

14th.—Fair and dry.

15th.—Fine throughout.

16th.—Dull and misty, with fog at times.

17th.—Overcast, with slight fog.

18th.—Dull and gloomy.

19th.—Dull, calm and cloudy, clearer in evening.

Another warm week, with extremely high barometer, no rain, dull & variable weather, scarcely any wind, and slight fog.—G. J. SYMONS.



COMING EVENTS

31	TH	Royal Society at 4.30 P.M.
1	F	
2	S	
3	SUN	4TH SUNDAY AFTER EPIPHANY.
4	M	
5	TU	
	W	

ARALIAS.

UNTIL within the last fifteen or twenty years the Aralias cultivated in gardens in this country were limited to several shrubby ornamental species of North America, of which *A. spinosa* and *A. racemosa* were perhaps the most popular; one or two from Japan, and about the same number from the Old World tropics. Since that time, however, improved means of intercourse with British possessions in Polynesia have offered facilities for the introduction of many of the beautiful plants with which these regions apparently abound, and, along with scores of richly coloured *Dracenas*, *Crotons*, and other plants, a number of distinct and handsome Aralias have found their way into English gardens. Graceful in habit, free in growth, and easily multiplied, these tropical Aralias have found general favour; and the many uses for which their distinct beauty and robustness of constitution make them specially fitted have been readily appreciated in all gardens where their requirements as tropical plants can be supplied. No doubt an improved and more comprehensive taste in horticulture has led to the more frequent employment of the hardy species in the formation of shrubberies, and also to a more general use of the greenhouse sorts for purposes of decoration, so that we have now between twenty and thirty distinct and handsome Aralias, comprising both hardy, greenhouse, and stove decorative plants.

Of the first of these, the hardy species, the most generally known is perhaps *A. spinosa*, a native of Virginia, the introduction of which dates back some two hundred years. It is called by the North Americans the Angelica Tree, from the resemblance of its foliage to the Angelica. As a low, and, on good soil, compact-growing shrub, it is one of the best and most distinct plants for the outdoor garden, its large twice or thrice-pinnate dark green leaves, which are borne on stout spine-covered stems, contrasting with fine effect with other leafage. A moist loamy soil in an open position causes it to produce leaves from 2 to 3 feet in length and almost the same in width, and in the summer to bear large bunches of white Ivy-like flowers. It may be propagated either by means of portions of the stem or by cutting the stoutest of its roots into lengths of 3 inches.

A. hispida, another North American species, and *A. racemosa*, from the same country, are somewhat similar to the above, though not so tall-growing. The former has a spiny stem and bipinnate leaves, and bears in July large long-stalked umbels of white flowers. *A. racemosa* is almost herbaceous-stemmed, has leaves of about half a dozen ovate segments, and does not bear spines upon its stem.

A. japonica, generally known as *A. Sieboldii*, is almost if not quite as useful a plant as *Ficus elastica*. In pots it is of great service for furnishing purposes; for window gardening it has very few equals, and for summer bedding out of doors it is now largely employed as a specimen or for grouping with dwarf flowering plants, as ground upon which its bright green hand-shaped leaves are effectively displayed. In

Regent's Park last year some very striking beds were arranged with this *Aralia* as the principal object. Thousands of plants of this species pass through Covent Garden Market almost weekly; it is, in fact, now one of the most popular of market growers' plants. In the south of England plants of this *Aralia* have stood out of doors for several years; in fact, it may be said that, with a sheltered position, such, for instance, as is necessary for some of the *Magnolias*, *A. japonica* is a hardy plant. For its propagation seeds—which are now to be had from most seedsmen—small pieces of root, or the stem cut into lengths similar to what is done in the case of Vines, are all equally reliable methods. A temperature of 65° to 70° will cause the stem or root-cuttings to strike in about a month. By growing the young plants in a moist intermediate house they soon form useful specimens, which may be hardened off and employed in many ways without suffering much either from gaslight or exposure.

A. reticulata is a yellow-veined variety of great beauty, the rich reticulation of bright yellow upon a ground of bright shining green giving the foliage of this plant an unusually ornamental character. *A. variegata* is another handsomely marked form of *A. japonica*, the foliage of which is margined and patched with yellowish white. These variegated forms are not quite as hardy as the type, but in a cool greenhouse they are quite at home. *A. dactylifera* is a long-lobed form of garden origin. This may or may not prove to be a variety of *A. japonica*; it has the appearance of a variety at present.

A. papyrifera, the Rice-paper tree of the Chinese, is a tall-growing, large, woolly-leaved species, suitable for planting out in a cool conservatory or for a sheltered position out of doors in the warmer parts of this country. The whitish wool which covers the leafstalk and almost hides the green of the palmate blade is not an unattractive characteristic of this plant. In winter, and sometimes again in summer, the large panicles of sweet-scented flowers are borne in great profusion, and last upon the plant for several weeks. It may be propagated in the same way as advised for Siebold's *Aralia*.

A. crassifolia and its variety *punctata* are both tall straight-stemmed greenhouse plants, with long narrow leaves, along the margins of which is a row of spine-tipped teeth, which give the foliage a fish-bone appearance. The orange midrib, dark olive-green surface, and stiff straight arrangement of the foliage, are singularly striking in these plants. They are both natives of New Zealand. I have not tried propagating them by means of roots, though it is likely that it might succeed. The top may be taken off and rooted, and the laterals, which will be pushed after its removal, form suitable pieces for cutting. The stem, if laid on cocoa-nut fibre heated to 80° and kept moist, will push up a number of lateral shoots, which may be removed and placed in the propagating frame to strike, or be left upon the parent stem until they have formed roots. *A. pentaphylla* and *A. trifoliata* have digitate 3 to 5-foliate leaves, are both tall-growing greenhouse plants, but have not any particular characters to recommend them for garden purposes.

The stove species of *Aralia* take rank among the first of ornamental-foliage plants. The most graceful of all are *A. Veitchii*, with its variety *gracillima*. Nothing can surpass the elegance of habit and the delicacy of foliage of these two plants, the variety being especially beautiful when young. For the decoration of the dinner table we have no better plant than this, and perhaps there is no plant in greater demand for such a purpose. The fine line-like, dark olive green, undulated leaflets, which are arranged in sixes or eights on the apex of the thin petiole, and the erect habit of the plant, are precisely those characters which are most effective in table decoration.

A. elegantissima is almost as beautiful, lacking a little of the grace of *A. Veitchii*, but distinct in its broader-toothed

leaflets and almost black stems. *A. leptophylla* belongs to the same group, differing from those previously mentioned in its possession of a short stalk to each leaflet and the absence of the teeth along the margins. Although the plants above named are distinct from each other when young it is not unlikely that they are forms of one variable species, the *Aralias* being known to be somewhat heteromorphous in a juvenile stage. So far as is known none of these plants have borne flowers in this country.

A. Guilfoylei is a variegated-leaved species, of handsome appearance when young. The foliage is pinnate, the leaflets being serrate and margined with white, the inner portion being here and there splashed with grey. *A. reticulata* has long linear entire foliage, and is rather graceful in habit, but is used principally as a stock upon which some of the kinds are grafted. *A. Chabrieri* is a recent acquisition, and is a handsome fine-foliage plant. The leaves are arranged in a distichous manner along the branches, and are narrow-linear in shape, their colour being olive green with the midrib and nerves of dull reddish tint. In addition to these there are *A. Osyana*, a dark-coloured digitate-leaved species, with ovate-lanceolate leaflets; *A. splendidissima*, a large-growing species with gigantic foliage like Ash leaves; and several others, none of them being worthy of particular mention. Those plants which are called *Aralias*, but which belong to the genus *Panax*, such as *A. filicifolia*, &c., are purposely omitted here. *A. souchifolia*, a curious-looking plant with irregularly shaped and blotched foliage, belongs really to the genus *Meryta*. The plant known as *Terminalia elegans* is most likely a species of *Aralia*, and may be increased by grafting it upon *Aralia Guilfoylei*, although it strikes fairly well in the spring.

For the propagation of the stove *Aralias* grafting must be resorted to, at least for some of them. Those which may be raised from cuttings are *A. Guilfoylei*, *A. reticulata*, and *A. Chabrieri*. The young stems of these may be cut into pieces with about three buds to each, and if possible foliage also. Plant them in pots of silver sand with a little peat below it, in which the roots will be able to find nourishment when they have formed. A close frame or bellglass should be placed over the cuttings, and a temperature of 75° maintained, with shade from sunlight and a saturated atmosphere kept about them. When strong enough, the two first mentioned species may be used as stocks, upon which those requiring to be grafted should be worked. Cut off the top of the stock to within 2 inches of the soil, and select stocks and scions of about equal thickness. A single bud with a portion of the internode below it is sufficient to form a scion. Splice grafting is the most convenient for these plants, and if neatly performed the union will be almost imperceptible when the plants have grown a little. Place the newly worked grafts in a handlight or frame similar to that advised for cuttings, and subject them to the same treatment. In about a month the union will be perfected, and the plants may then be placed in pots of convenient size, using a mixture of loam and peat in equal parts, with a sprinkling of silver sand. When the plants are ready to shift into larger pots a little dried cow manure may be mixed with the soil. A well-drained compost, so that plenty of water may be supplied to the plants without any danger of sourness or soddenness resulting. A tropical stove temperature with a saturated atmosphere and shade from bright sunshine are the conditions necessary to the successful cultivation of stove *Aralias*.

As the plants increase in height their foliage becomes larger and less graceful, so that it is always a good plan to cut them down and graft them again. If the stocks are too thin to take the stem of old plants, then, instead of cutting the stem down, remove the top and graft it upon one of the strongest stocks; the latent buds on the stem will then push into growth, which when long enough may be worked on to stocks. Unless a large number of plants are required this latter plan is by far the best, as the side shoots take quickly and commence to grow at once. *A. reticulata* is the most

suitable stock for *A. Veitchii* and its variety *gracillima*.—W. W.

FORCING VEGETABLES.

To have an abundant supply of really good forced vegetables during the winter months—say from the middle of November onwards—is by no means a difficult task where there are ordinary means at command, so that the amateur or cottager may have a fair supply without taxing his skill to any great extent or by giving much labour. Having occasionally been put to the test, when renovating old places or forming new ones, of producing abundance, our inventive powers have been called into action to supply articles from the garden much in request during winter. Last season, probably more than at any other period in my recollection, I had to apply rough and ready means to meet the demand.

Mushrooms, perhaps the finest we have seen, were from boxes filled with ordinary stable manure trodden firm and treated in the usual way, the lids being kept close till the Mushrooms appeared. They supplied abundant crops of remarkably large Mushrooms, much finer than on ridges formed in the old-fashioned system largely practised by market men, which we also had recourse to; but while a place is swarming with tradesmen even these ridges are in the way. Where there are sheds or other erections where Mushrooms can be cultivated it is generally preferable to grow them in such places, as ridges give much trouble uncovering to gather the crop during inclement weather, and it is only in few places where space can be afforded to have littery ridges standing about. In stables, cowhouses, and similar structures we have had all we could desire in the way of Mushrooms with a minimum of trouble or expense.

Seakale-forcing, though simple, is done less successfully by amateurs than might be expected. Some proprietors will insist on having it forced in the old-fashioned way with pots and fermenting material, because they maintain that blanching is more complete, and the appearance is better when served, and, we may add, often more tender than what is forced in Mushroom houses and other heated structures. Last season we placed a few boxes with close-fitting lids in a heap of fresh-collected leaves, placed the roots of Seakale closely and upright in the bottom, with room for the crowns to sprout about 8 inches or so. The whole was covered with more leaves and some branches of trees placed over them to prevent their being blown about by wind. The produce was excellent. Other means were adopted to meet our requirements, such as a square pit dug out and lined with boards and covered with leaves and litter, and later in the season the crowns were packed close and covered with old partially decayed manure, which answered well; while in the open ground soil is drawn over the crowns, where they grow and blanch easily. In strong clay or marly soil this method does not suit well. A covering of clean leaf mould, old tan, such as is usually adopted when Hyacinths are newly potted, is preferable to using the ordinary soil.

Rhubarb was lifted intact, packed closely together, covered with strong crates, leaves and litter built round them, and some litter thrown over the top, which was easily removed to gather the Rhubarb, which was in great abundance from the beginning of December till it was gathered in the open ground. Some roots placed in boxes in a shed where the mechanics assembled to have their meals did fairly well, but not equal to the roots placed in crates. A baker in our district told me he sold over £10 worth of Victoria Rhubarb last year raised in a corner behind his oven! In such positions much care is necessary to prevent the stalks becoming dry and tough. Plenty of moisture judiciously applied obviates the evil.

Asparagus was had in quantity by placing a square box about 3 foot deep over a heap of collected leaves mixed with a little litter, on which the roots were packed in the ordinary manner and covered with light soil. A mat did duty instead of glass, and while weather was severe extra covering was added.

Peas for planting out in March were raised in an outhouse sown in boxes thickly, and when the Peas were through the soil they were placed in front of an old building with pieces of wood in short lengths placed along, resting on the wall, to keep the coverings off the Peas, which were exposed during the day when mild but covered at night. About the middle of March these Peas were planted out and closely staked, and we never remember seeing Peas grow so freely. They began to yield pods about the 20th of June. The season was late, and said to be the coldest spring and summer ever remembered in this district. Now that new structures have taken the place of "makeshifts," bottom and top heat of the most modern and efficient construction, an abundance is supplied with a minimum of trouble;

and while we decidedly prefer means to meet our requirements, we do not despise the "days of small things" of last season—M. T., *Stirlingshire*.

TRANSPLANTING LARGE SHRUBS—MAKING A HA-HA.

How should a shrubbery be planted? With large costly specimens put far enough apart for full development, or with smaller plants set thickly to clothe the bare earth for a certain immediate effect? Both for economy and expediency I prefer the latter method, the only attendant or rather resultant disadvantage being the necessary repeated thinning of fast-growing shrubs, till at length it becomes difficult to find space for all of them. If this very natural result of free healthy shrub growth were taken into account at first, and economy kept well in view, the whole of the shrubbery would not be made at once, but gradually, so as to afford space for every growing shrub; and what is of even more account, keep some fresh feature to be added to the garden yearly. Without expecting everyone to agree to this protracted method of laying out a garden, I am sure that many will appreciate the pleasure and advantage to be derived from it. Of this I am able to speak positively, as I have for several years been engaged in this interesting work of the gradual development both of dressed grounds and wild-like woodlands. It is to some of the work done this winter that I now wish to call attention.

Some large masses of Rhododendrons had become so much crowded that thinning and re-arrangement was desirable; but the work was not to be undertaken lightly, for most of the shrubs were from 6 to 8 feet high, many of them as much in diameter, and there were several hundreds of them. After the re-arrangement the surplus

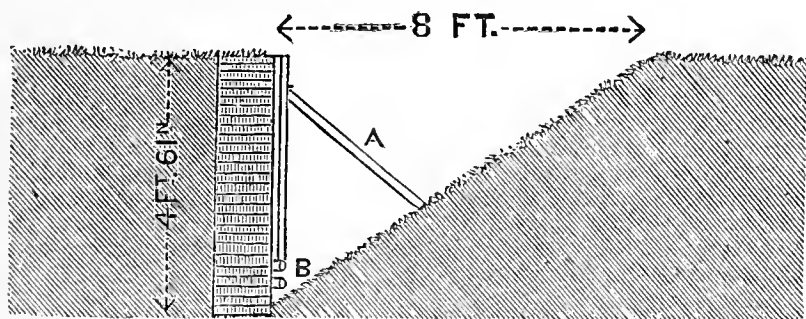


Fig. 12.

stock was certain to be large; what was to be done with it? It was resolved to add two acres to a conspicuous lawn where the outlook was somewhat tame, and to make there six large raised beds for the surplus shrubs, with soil obtained close at hand by making a ha-ha or sunken fence along the new enclosure. The obvious advantages of this plan were a picturesque effect, economy of labour, and a comparatively inexpensive enclosure, the only part of the ha-ha that could be regarded as a separate expense being the building of a turf wall against the back of it. The turves were a foot square, 2 inches thick, and they were laid flat upon each other. The cost of such a wall is trifling in comparison to one of brick or stone. The turves soon grow together, the front becomes clothed with verdure, and its soft green hue is infinitely preferable to the harsh uncompromising effect of masonry. Careful building is, however, important, for, however skilful the turf-cutters are, some of the turves are certain to prove uneven, and if they are not laid truly and well the wall may fall. To avoid risk I have had stays and pieces of rough board put at intervals along the wall (A, fig. 12), and 2-inch pipes, as at B, put at intervals through the turf near the bottom to prevent any accumulation of water behind the turf. The stays will remain till the turf has grown together and is quite safe.

The soil was excavated and wheeled to the raised beds a distance of 30 to 40 yards for 1s. 0½d. per cubic yard. This price may appear high, but in reality it was not so, for there was a foot or more of gravel at the bottom, for which picks had to be used, and the dressing of the slope was included in it. The men—many of them skilled navvies—earned 2s. 10d. a day; in summer they would probably have earned 3s. 6d. If the subsoil had been easily worked the cost would have been from 2d. to 4d. less per cubic yard. I mention this to show how impossible it is to arrange a common rate of pay for such work. The only fair way is to have one or more sections opened, and then to prepare an estimate of costs beforehand.

If set about in the right way the lifting of large shrubs is an easy and expeditious operation, without risk or damage; but in careless ignorant hands there is not only much loss of time, but a very considerable risk of a subsequent loss of many valuable shrubs. I happen to live near a large nursery, where most of the labourers of the neighbourhood have been employed, yet anything like intelligence in doing similar work to what they must have done there is certainly the exception rather than the rule. The crowded masses

of Rhododendrons were each begun at one end, a trench opened half way round each plant, the soil worked well away from beneath the ball of soil and roots, and then a spade passed down through the soil round the back of the ball, care being taken not to cut into the ball, but to keep the spade upright. A long 2-inch plank was then thrust under the wall as a lever, a short plank being laid on the edge of the hole for a fulcrum, and with one heave a couple of men could lift the plant level with surface, and then moving round with the end of the plank the shrub was dropped upon a sleigh consisting of a piece of broad plank with a couple of runners beneath and ropes fastened to one end, and at once pulled aside out of the way. Without the lever and sleigh how difficult and tedious the work is. To lift a large shrub in any other way with 5 or 6 cubic feet of soil and roots is not easy, and too frequently the ball is reduced so much that the shrub suffers severely. For removal to a distance a low hand-truck was used. In this truck the principle of leverage is again used, the handle being at an obtuse angle to the body of the truck, so that by tilting up the handle and thrusting the truck under the ball of a shrub tilted over for this purpose, the handle has only then to be depressed and the shrub is lifted and wheeled away.

In replanting due care was taken to insure the free growth of root and branch next season. The old beds had a surface dressing of several inches of fresh soil, and they were trenched, but all the good soil was kept on the surface. In this a portion of the shrubs were carefully settled, and the recent unpleasant damp foggy weather has certainly been good for them.—EDWARD LUCKHURST.

EAST LOTHIAN STOCKS.

Stocks must be familiar flowers to all readers, as every seedsman's catalogue contains their names in great variety, and the German, Brompton, Cape, and the Emperor strains have been long and widely known, but the East Lothian Stocks are seldom classed with these in books or gardens, as they are generally treated as specialties, and they deserve this distinction, for of all Stocks they are undoubtedly the finest. It may not be known to all that these were originally brought into notice by Mr. David Thomson, who wrote interestingly of them in these pages, and astonished everybody with the gorgeous displays in the flower garden at Archerfield. In this way a guarantee of their excellent characters was given, which they have retained ever since; and as several nurserymen, especially north of the Tweed, make it their business to preserve the strain in its original purity, we may confidently expect to find their valuable characteristics maintained for a long time to come. There is scarcely room for improvement, as their habit of growth and colour of bloom are all that could be desired. They grow very dwarf so far as the leafy wood is concerned, but they produce wonderful spikes of flowers. The colours are distinct and striking, and as a trio are unequalled. The white pure, the purple deep, and the scarlet intense.

Their decorative qualities are not confined to one particular, but they may be used in many ways with effect. In the flower garden proper they form charming beds or rows, and in mixed borders they may be pleasingly grouped. Being so much inclined to bloom and little disposed to make superfluous leaves and wood, their whole habits render them most suitable for growing in pots for greenhouse and conservatory decoration, and for this object alone they merit attention, as they are exceedingly showy and fragrant in the conservatory.

In cultural requirements they do not differ from the most common or poorest of Stocks. They are easily reared, hardy in their matured growth, and reliable in all localities. From the middle of January until the end of March is the time to sow seed to produce plants for blooming in summer and autumn. From the earliest sowing they will commence flowering in June and July, and continue until December. Seed sown in April or May will give plants which will be ready to shift into 6-inch pots in July, and if grown in these the plants will bloom profusely in November and onwards. Now and in spring the seed should be sown in pots or boxes in a little heat, and the plants may be transferred to other pots or boxes, or the whole may be dibbled into a frame, and in any case they should be grown so as to be quite hardened by the beginning of May, when they may be planted out. Plants for autumn and winter blooming do not require to be reared under glass, but will do quite well out of doors.—J. MUIR.

PEAR JOSEPHINE DE MALINES.

THIS is the best Pear of its season—clear-skinned, smooth as ivory, pleasant to the eye—no doubt what Josephine herself was fifty years since, when Major Esperen, with the true instinct of a military eye and the heart of a husband, dedicated this, his best bantling, to his partner. Delicious to the taste, luscious and piquant, Madame could have received no greater compliment from the Major than this dedication. The Pear is not coarse but agreeably modulated in size, with a tender tinted flesh from the rind to the core.

Sometimes in our ungenial climate it is tardy in ripening, and this year my Pears were apparently hopeless. Fortunately, a houseful of Maréchal Niel Roses just bursting in bloom suggested that the fruit should have the benefit of the heat. In three days the unripe Pears changed into the sweet and tender Josephine de Malines. No man can desire better.—T. F. RIVERS.

[Specimens accompanying this letter were very delicious.]

DENDROBIUM MONILIFORME.

I SEND for your notice a spike of this beautiful early-flowering Orchid. It is a plant that all cultivators of fine-flowering stove plants should possess. Our largest plant of it has just had 450 flowers upon it, and without any forcing the first blooms opened on Christmas day. It is a plant of the easiest culture, requiring the ordinary stove treatment. The only point that I have noticed which should be avoided is much exposure to the sun in summer; still no shading is necessary when the plants are a little distance from the glass. Place them on the surface of well-crooked pans, turfy peat and sphagnum being packed round the roots. Young growth is necessary to lay the basis for free flowering, and this is insured by providing plenty of moisture in the atmosphere in the summer or growing season. This Dendrobe flowers uniformly on the previous year's wood, this year's growth retaining its foliage, which gives the plant a good appearance. In autumn after the growth is made we keep the plant quite dry, and in this condition the pseudo-bulbs soon become covered with flower buds, and after these have fairly shown the plant is placed in a slight heat. This Orchid can be relied upon as a first-rate Christmas plant.—ROBT. MACKELLAR.

[Our correspondent sends us with these notes a portion of a healthy pseudo-bulb of *Dendrobium moniliforme* 9 inches long, and bearing twenty-two richly coloured blooms in pairs or triplets, and forming quite a wreath of flowers.]

CULTURE OF HORSE-RADISH.

As Horse-radish is required in almost every household and at all seasons of the year, it is well that the best way of growing it should be more generally understood by gardeners in private places than it is at present. As a rule the Horse-radish occupies the same ground year after year. When a little is wanted it has to be searched for all over the bed, and when found is often not fit for use. Until a very few years ago I was much puzzled to keep up a supply, still I had a large bed devoted to it; at the same time I could see grand samples exposed for sale in the shops—long, thick, white roots, in every way superior to that grown in gardens. I made inquiries among some of the best gardeners of my acquaintance, and also consulted all the garden literature at hand. Some advised cutting a number of old crowns from the bed, planting them about a foot deep in rows; others recommended planting long thin roots in rows. Both plans were followed and answered fairly well, still there were drawbacks. First, by these methods Horse-radish takes two or more years to grow to a proper size, and is always woody and inclined to be black in the centre, while it did not come up to the standard of that in the shops. But eventually coming to live near Manchester, and in the very district where a large quantity is grown annually for market, I was not long in arriving at the right practice, and I cannot do better than detail the advice given to me by a very good grower.

About the end of January commence at one end of the old bed, and carefully take out every piece of root, large and small. Take care of the long, white, thin roots, not less than a foot long and the growth of the previous year. Tie them in bundles and bury them in damp sand. Select all which you think will be fit for use, and bury them in soil or sand. These will do for use while the young ones are growing. Clear the refuse off to be burnt, and prepare a bed or beds in an open sunny position. Thoroughly trench and dress it with decayed manure, which must be well mixed with the soil. At the end of February or the beginning of March take the young roots or sets out of the sand, and it will then be easy to distinguish the crown end, as there will be a number of buds or small sprouts round it. Obtain a piece of rough cloth and rub the entire length of the set with the exception of about an inch at each end, the object being to remove all buds which would afterwards become roots and disfigure the size of the main root. In planting mark out the beds 3 feet wide, leaving as much soil in the alleys as possible. Lay the sets 15 inches apart in a horizontal position across the bed, the crowns to the walk down both sides of the bed, then cover them 2 inches deep with soil from the alleys. When the leaves are about 4 or 5 inches long examine them and take off any roots which may have formed at the base of the leaves. As growth advances mulch well with good manure, and give periodical waterings with liquid manure. Care must be taken during dry weather that they do not

suffer for want of water, or the crop will be very much injured. By the end of October the crop will be ready for use. A sufficient number of young roots must be saved for the next year's sets and treated as before.

It is always well to change the ground every year, for if grown in the same position for two years it is apt to become dark in colour and woody in texture. What is wanted for next summer's supply should be taken up and stored in damp sand or soil. I only know one variety, but a large grower for market tells me there are two, one very much better than the other.—WM. PLANT.

"SINGLE-HANDED."

MAY I ask all who have so promptly responded to my appeal on behalf of a suffering fellow labourer to accept my grateful thanks for the aid they have rendered and the manner in which it has been conveyed? The letters I have received form a treasury of sympathy that must ever be valued by our friend, if he lives, and his family. As typical of these letters I cite from the first that came to hand, and it is the more necessary to do so since the writer withheld his name and address.

"I felt very grieved to see your sad account of the health of your well-known correspondent 'Single-handed,' as I presume in common with most of your subscribers, I experience almost a feeling of personal regard for those whose genial and experienced writings give us weekly so much pleasure and profitable information. I admire the old motto, '*Bis dat qui cito dat*;' and though I cannot send Grapes I can send wherewith to procure some, and I beg to enclose £2, trusting that I may have the pleasure of hearing that it has been of use, and that before long we may once more have the gratification of seeing his *nom de plume* at the bottom of an article. With best wishes.—AN OLD SUBSCRIBER."

That letter is from certainly a good man, and presumably affluent; the other, and the last opened up to the time of writing, is from a gardener, and is equally prized.

"Let me thank you now for your friendly aid to one who is, I am sure, a brother to be beloved. I mean 'Single-handed.' I send 2s. 6d. for him. You can either send me a packet of seed of *Auricula* or not. If there are others more pressing let them have the seed, but let 'Single-handed' have the money all the same. I wish I could make it eight times as much. I do rejoice to know that he is, even as I am, earnest in the temperance cause. May the Great Physician heal him wholly. My warmest blessing he has, now and always.—H., *Notts.*"

Many others have written similarly. There are still a few packets of *Auricula* seed at disposal, which I shall be glad to distribute. It is only fair to state that "Single-handed" has not during any part of his serious illness been in receipt of wages, his sense of what was right impelling him to ask to be suspended from his engagement when he felt his incapacity to do his duty. The cause of his present illness is attributed to three night journeys of 400 miles each and the exertion attending the removal of his family, &c. The sums sent, with any that may follow, are urgently needed, and will be applied to meet the actual necessities of one of the saddest of cases and the best of men in the gardening world.

The supply of Grapes is at present ample, and those who have so generously offered them will be written to as a bunch may be required, and they are now cordially thanked for their kindness.

With the object of affording the best information in answer to numerous inquiries relative to the condition of "Single-handed," I have received the following letter from the skilful medical gentleman who has attended him so assiduously.

"124, Western Road, Brighton.

"January 29th, 1884.

"DEAR SIR,—In accordance with your wish I have pleasure in writing to you with regard to your afflicted correspondent. I saw him yesterday, and found him decidedly worse. He is suffering from, I fear, a malignant form of ulceration of the stomach, and I see no hopes now of his recovery. He looks blanched and bloodless, and is being slowly, poor fellow, starved to death, for scarcely anything keeps down, and I do not think the end can be very far off. He bears his trouble with calm heroic resignation, and it is a source of keen regret to me that I can do nothing further to help him.—Very truly yours, ALLEN DUKE."

It is painful to publish this letter, but in no other form can such authentic information be conveyed; and I have only to add that "Single-handed's" copy of this issue of the Journal will be sent to his medical attendant.—J. WRIGHT.

VINES BLEEDING.

I PROPOSE putting Messrs. Muir and Taylor, who, I see from the note of "Comber," do not believe that Vines are injured by bleeding, to this test: I ask them if they will allow me or my deputy to freshly pare the wounds of all the pruned shoots, &c., three days before starting the Vines in any one of their most important and best vineries about to be started soon. If the bleeding does no harm the paring of the wounds will do no injury, and if their faith is equal to their professions they should not hesitate to submit their Vines to the ordeal. If they decline the challenge I and others of your readers will no doubt form our own opinions about their preaching and practice. I can only account for any

gardener claiming bleeding to be harmless on the supposition that he never saw a real case of severe bleeding. Mr. Muir's Vine that bled "gallons" must have been a very marvellous plant indeed. I never saw a Vine bleed to that extent, and never knew anybody either who did. The most was at the rate of a teacupful (or less) in about twelve hours, and continuing about two weeks, and the effect upon the Vines, and especially upon the shoots which bled, was very debilitating for two or three years afterwards, thus showing that bleeding produces both a local and general effect upon the Vine.—NON-BELIEVER.

I FEEL much interested in the subject of Vines bleeding, and, like "Comber," have been anticipating something from Mr. Muir concerning the

scarcely amounted to "dropping," and has occurred when a cane or two of Black Hamburg has been planted with late varieties. The pruning that has been early enough for the late varieties has been a little too late for Black Hamburgs. The beginning of February is too late for pruning Vines; the sooner they are pruned in the new year the better. There is nothing gained by leaving them till later. If Vines are pruned early there is no need to use styptic, in fact it is simply a waste of labour. If "Comber" prunes a fortnight or three weeks earlier another season I think he will find that no bleeding will follow.—E. BUTTS.

CLIANTHUS DAMPIERI.

To a correspondent who seeks information on the culture of Clianthus we commend the following article by Mr. G. Abbey; it may also possibly be careful to others who desire to cultivate this gorgeous flowering greenhouse plant. Now and then we see a plant of this, but rarely a well-grown specimen:—No finer subject (if indeed any can vie with it among greenhouse plants) is found among the Leguminosæ. Its quaint flowers, 3 to 4 inches in length, are borne in clusters four to seven in

number upon a rather stout erect stem; they depend gracefully, are of a fiery scarlet colour, with a glossy deep bluish-black centre or boss, which seen amid or above the elegant light shining glaucous-green foliage have quite a striking effect.

Everybody of course knows that it is a native of Australia, and generally accepts it with *C. puniceus* as a climber. None of the plants I have grown of *C. Dampieri* are any climbing tendency. The first shoot, it is

true, rises erect, but is not long ere it seeks a dependent habit, and from the neck or collar of the plant emanate shoots about the same time as the primary growths begin to depend, and those have not an upward tendency. This habit is so decided that I can imagine no finer subject planted upon a knoll or raised bed with the shoots allowed to ramble at their own "sweet will" in all directions. The trusses of flowers will rise 4 to 6 inches clear of the foliage, appearing as jewels of coral set in silver. Or grown in a large deep pot raised so as to be level with the eye, the shoots depending all around would be when in flower strikingly effective.

The seed is sown early in June and placed in a hotbed, covering the seed about a quarter of an inch deep, the compost consisting of turfy loam three parts, sandy peat one part, leaf soil a part, half a part charcoal in sizes from a pea to a hazel nut, and half a part of silver sand, the loam and peat broken up rather roughly, the whole well incorporated. No difference is made in the compost afterwards, only old cow dung supplants the leaf soil at all subsequent pottings, and in case of the loam not being fibrous, equal parts of it and peat are taken. The seeds are placed two in a 4-inch pot, or several in a 6-inch, but the latter is not so good as the former, as the plants have to be potted off, which checks them considerably. So soon as the seedlings appear they are raised on an inverted pot near to the glass, the object being to keep the plants from drawing, especially the stem beneath the first leaves. Water is given sparingly, and always just within the rim of the pot, it being only given when the soil becomes dry. The pots are afterwards placed upon slates, as when stood upon soil the roots speedily find their way into it through the drainage. One crock and a lump of charcoal are employed for drainage. Shade is given the young plants after potting them, but when established they are fully exposed to the sun. Only one plant is grown in a pot, and with a genial atmosphere they grow freely. In a cold, moist, stagnant atmosphere they will not thrive, and drip upon their branches will destroy them.

When the roots show at the bottom of the pots shift into 7-inch, keeping well up in the centre and forming a dish all round just within the rim, using charcoal as before for drainage. If moderately moist when shifted, the soil employed being also moist, do not water after potting but wait a while, returning the plants to the frame. Never water until the soil be dry, and yet before the plants show distress, for this plant will not thrive in a parched soil. Red spider will come in due time, destroy it at the onset. Lay the plant on its side, syringe on the under side of the foliage forcibly, turning round so as to dislodge the enemy from every part. It must be done without deluging the soil with water, making it a quagmire. Repeat the syringing if necessary.

From 7-inch transfer to 11-inch pots, leaving space all around just within the rim (with the plant rather high in the centre) for watering. The drainage should be thorough—a fourth the depth of the pots. Pot moderately firm in compost rough rather than fine. Place in a pit or house, light, moderately airy, with plenty of room, having a temperature of 45° to 50° at night, 55° to 60° by day, or that of an intermediate house, mine being kept in a pit up to the end of September and then transferred to a greenhouse with a temperature from fire heat of 45° to 40° at night, 50° by day, but that temperature is too low. Notwithstanding, blooming commences in April and is continued until June. I have transerred plants from 4-inch to 9-inch pots successfully, but those who can command a position for planting out in a house with a winter temperature of 50° would, I feel certain, be amply rewarded by increased size of plant and bloom. I have sown in April and grown the plants in frames, but

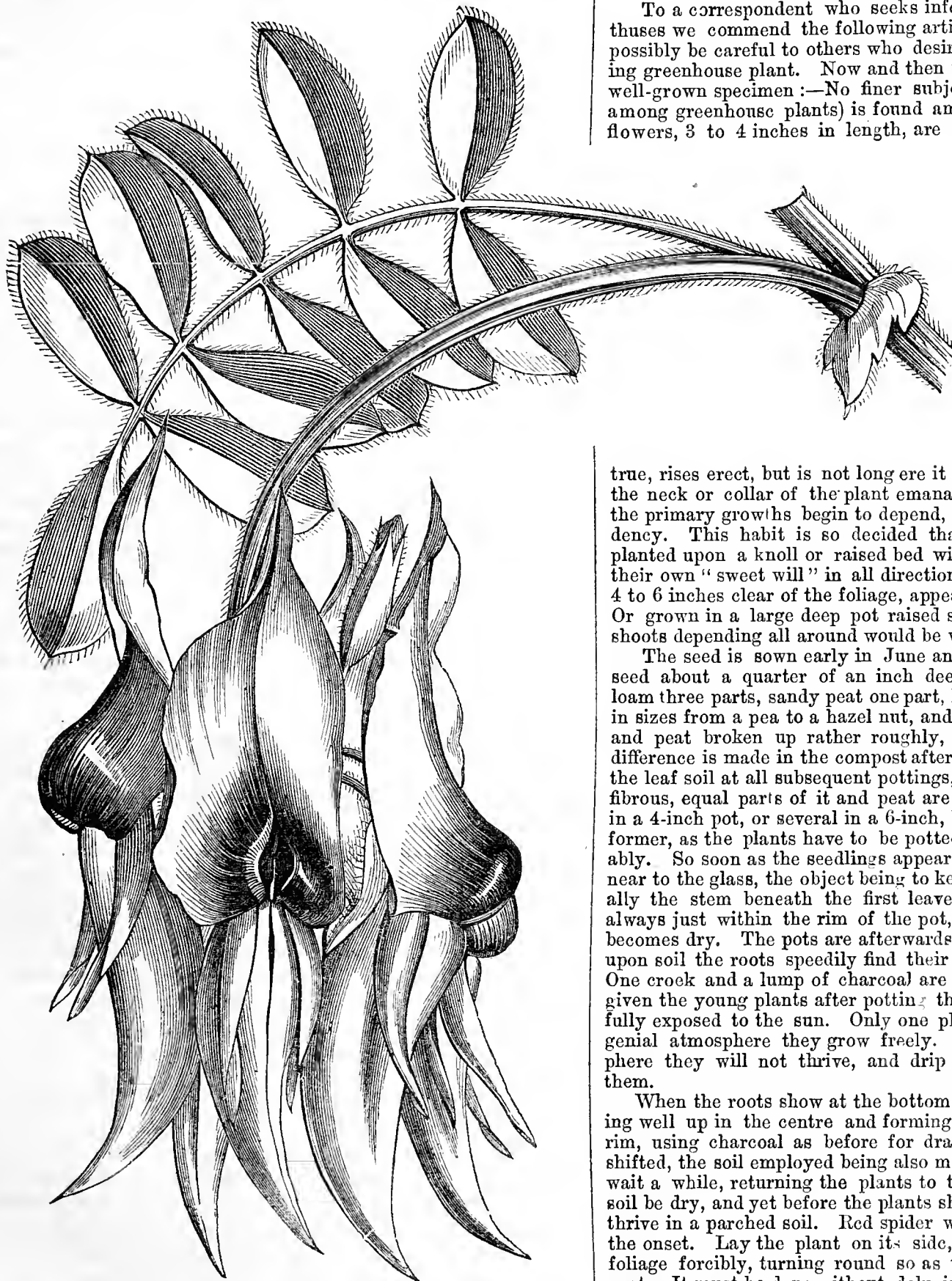


Fig. 13.—*Clianthus Dampieri*.

Vine mentioned in the Journal of April 5th, 1883. Some modern writers on the Vine seem to think it a matter of no importance, while others who give practical hints on Vine-growing advise the use of a styptic to prevent bleeding. In one large private garden in the midlands where I served as foreman, in one of our early houses a pot Vine commenced to bleed soon after being placed in heat. We endeavoured to stop the bleeding by searing the wound with a red-hot iron and applying styptic, then sealing wax. Both these failed, and the Vine continued to bleed till it had made shoots 2 or 3 inches long. The shoots were weak and the Vine was in every way inferior to the others in the house. The only inference we could draw was that the ill condition of this one was the result of excessive bleeding. The case of "Comber's" Vines is singular. I have occasionally seen a Vine or two bleed slightly and then cease, but in such cases it has

being large in autumn did not winter well, as flower trusses were shown in early winter, which in a temperature of 45° to 40° at night and 50° by day did not advance.

The plants are very impatient of a wet sodden soil, and equally so of a cold damp atmosphere, but they flourish in a brisk moist heat if ventilated freely and not shaded. Sown the middle of August in a hotbed in 4-inch pots, removed to a house with a temperature in winter of 45° to 50°, given 7-inch pots the end of September, 9 or 11-inch in February, we have plants that flower in June through the summer.

As to training, let its shoots come out naturally, for it is ill-suited for twisting round stakes; but if stakes must be used employ as few as possible, not distorting by seeking to make it climb, which is contrary to its nature. The annexed figure of a spray of this plant will enable those who are not yet acquainted with it to judge of its appearance. Although very old the plant has not yet been seen by everyone.

[Messrs. Carter & Co. have been very successful in growing this plant in their nurseries at Perry Hill. • The plants were, as Mr. Abbey suggests, grown on a "knoll or raised bed;" but the mounds were formed in a low span-roofed house, and the shoots were secured to the lower part of the roof. The rich pendent flowers were thus seen to great advantage, and some of them exhibited at a meeting of the Royal Horticultural Society secured for the growers a cultural commendation. We have never seen such a fine example of culture in a pot as on the knoll referred in the light greenhouse at Perry Hill.]



CHATSWORTH.—The following announcement, "We understand that Mr. Thomas Bannerman, gardener to Lord Bagot, Blithfield, Rugeley, has been engaged by the Duke of Devonshire to succeed the late Mr. Speed as gardener at Chatsworth" appeared in the *Gardeners' Chronicle* last week, and brought us telegrams and letters controverting its accuracy. We are in a position to say that the statement is incorrect. Mr. Bannerman, in a letter before us, himself denies its truth; and the Duke of Devonshire's agent informs us "that a gardener has not been appointed for Chatsworth, and it is not expected that the appointment will be made for some little time."

— MR. J. DOUGLAS writes:—"D., *Deal*," writing at page 58, states that £243 was given for a plant of *Vanda Sanderiana*. This is incorrect; it was for a plant of *AERIDES LAWRENCIÆ*, quite a unique specimen, of which it was presumed none like it would ever be introduced. The trade in Orchids is now becoming so extensive that nurserymen and amateurs are getting sadly mixed. I do not allude to this particular plant. Of its destination I know nothing. But it seems to me that where a person can go into a garden and purchase plants at the usual retail or wholesale price that garden cannot be considered other than a nursery. Amateurs purchase in many cases with the intention of selling again. I do not know whether all this is fair to the heavily taxed nurseryman. I believe the sale of that plant cost Mr. Sanders a special visit of the tax-gatherer, and a grievous addition to his already heavily taxed business."

— THE same correspondent also observes with regard to PRICES OF TULIPS:—"At page 66 it is stated that certain Tulips were sold in 1854 at one hundred guineas each. This statement is also made in my book on 'Hardy Florists' Flowers,' but I am not sure whether it is quite correct, and in another edition of the book it would be modified. The reason I arrive at such a conclusion is this: In 1854 Mr. Groom catalogued show Tulips at the prices given in my book, and quoted correctly by Mr. Robinson. We have no positive proof that he sold any of them. And I am the more confirmed in this belief because on the 30th of October, 1855, Mr. Groom's Tulips were put under the hammer of Messrs. Protheroe & Morris, and the highest price obtained for one row of seven roots was 60s., not 9s. each."

— MR. W. BARDNEY writes as follows concerning READ'S NEW HEARTING BORECOLE—"It is dwarf, the leaves are beautifully curled, and I would recommend those who grow Borecoles to give this variety a trial. It is said to be perfectly hardy, and I should say such is the case judging from the quantities that I have seen in the Liverpool market late in the season during the past five or six years. It is also said to

remain in good condition after all other Borecoles have commenced running to seed. This I believe will prove the case, for those alluded to have come to the market in good condition long after the varieties of dwarf curled have been running freely to seed with me. I have tried several times to obtain the seed of the variety sent to the market, but failed to do so. Are there two varieties under this name? If so, can anyone point out the difference between them?

— "M. S." considers that *IRIS STYLOSA* or *UNGUICULARIS* should be grown in all gardens. No doubt the exceedingly mild weather has had something to do with its earliness in flowering this season, but in ordinary winters unprotected in the open border it is seldom a fortnight later than this. It is much like *I. fimbriata* and *I. Robinsoniana* in general appearance.

— IN the note on POTATO TRIALS AT CHISWICK, which appeared at page 62 of our last issue, a clerical error (for which we are not responsible) occurred. Instead of "six fair samples of each," the reading should be "twenty fair samples," and not more than eight varieties.

— AN unusually fine display of ORCHIDS IN FLOWER was provided at Messrs. Protheroe & Morris's monthly sale in their rooms, 67 and 68, Cheapside, on Tuesday last. It was indeed quite an exhibition, and attracted a large number of buyers and admirers of Orchids. *Odontoglossums*, *Cœlogynes*, *Cypripediums*, *Dendrobiums*, *Lælias*, *Lycastes*, *Sophronitis*, and many others were represented by scores of plants, mostly flowering very freely. The principal prices realised were the following:—*Odontoglossum nobile cærulescens*, 8 guineas; *O. Andersonianum*, 9½ guineas; *Lælia anceps*, good variety, 10 guineas; *Oncidium superbiens* var. *Enoi*, 18 guineas; *Lycaste Skinneri alba*, 21 guineas; *Odontoglossum crispum* var. *Dormanianum*, 8½ guineas; *Epidendrum Wallisi*, 19 guineas; *Odontoglossum Alexandræ*, very fine variety, 15 guineas; *Dendrobium Ainsworthi*, £6 and £5 10s.; *Cœlogyne cristata*, £8 10s., very large, over 3 feet in diameter, and in fine condition; and *Cypripedium villosum*, a very large specimen, 3½ feet in diameter, with thirty-five flowers, £5.

— WE are informed that the dates for the BRIGHTON AND HOVE CHRYSANTHEMUM SOCIETY'S SHOW for this year are fixed for the 11th and 12th of November next. The Secretary is Mr. Mark Longhurst, 87, Western Road, Brighton.

— THE fortnightly meeting of the Manchester Horticultural Mutual Improvement Society was held at the old Town Hall, King Street, on Thursday evening, when Mr. Bruce Findlay read a paper on the DISEASES AND CASUALTIES OF VEGETABLE LIFE. Mr. Frank Robinson presided, and there was a large attendance of members. Mr. Findlay said that he had been induced to turn his attention to the subject by the quack advertisements which promised to cure all manner of diseases to which animal and vegetable life were subject. It behoved them to be on their guard against quacks. He did not mean to insinuate that all the advertised curatives did no good, for he knew that the contrary was the case with many of them. He divided casualties under three heads—namely, wounds, diseases, and natural decay. Touching upon the felling of trees, which seemed to be a favourite occupation and pastime of many eminent men, he remarked that the practice was to be deprecated unless it was necessary. Looking around Manchester, a man who had known it for half a century could not fail to see the powerful pestilential agencies at work which had killed trees by thousands, but seldom did we see any planting done. Our municipal authority lavished a great deal of money upon art galleries and in other ways, against which he had nothing to say, but it would be thought suicidal to spend £4000 or £5000 upon the planting of trees. He contended that a man who caused a tree to grow in a town raised the most beautiful monument possible. We should, therefore, do what we could to put a stop to the practice of cutting down trees for mere pastime. The most frequent diseases of vegetable life were the following—Blight, smut, mildew, honeydew, dropsy, flux of juices, gangrene, suffocation, contortion, and consumption. He explained the nature of each complaint, and then spoke of natural decay, which formed the last section of the paper. Mr. Williamson of Whalley House afterwards exhibited some splendid blooms of Japanese varieties of Chrysanthemums.

— IN reference to FLOWER FARMING IN NEW YORK the following recently appeared in the *New York Times*:—"The sale room is that of one of the largest commission dealers in flowers in New York. 'I want fifty Jacs,' said an elderly gentleman with a capacious basket who had come for his daily supply, 'a dozen Mermets, 100 sprays of Mignonette,

200 Carnations, 200 Camellias, fifty strings of Smilax, twenty-five Lilies of the Valley, and fifty Bouvardias.' The articles were counted off as he named them and put into the basket; the wholesale price of the order was £16. The basket would easily hold £100 worth of Roses or £200 worth even of Lilac sprays, which at this season of the year are among the most valuable of flowers. 'Until ten years ago,' explained the commission dealer, 'the flower-growers sold their stock to the florists direct; but with the growth of the business there became a necessity for middlemen, and now nearly the entire merchantable stock of flowers used in New York passes through the brokers' hands. The business of growing fine flowers for the market has become a great industry; hundreds of thousands of dollars are invested in hothouses, and the product amounts to over £400,000 a year at the wholesale prices. There are over 500 men engaged in the business, many of whom are millionaires who have made the profit on their gardens pay the expenses of their places and a handsome interest on the money besides. Flowers now are as staple article as Wheat or corn. A good Rose bud is always saleable for cash. This morning we had 20,000 Rose buds on our counters, and every one is sold, and half as many more could have been disposed of if we had them here.'"

— THE Hon. Secretary of the PERSHORE HORTICULTURAL ASSOCIATION (Mr. J. Milward) reports that the banking account of the Association shows a balance in their favour of about £360, and that to witness the show and sports on Bank Holiday, 6th August last, when rain fell in torrents during the greater part of the afternoon, upwards of 10,000 persons were admitted.

— "WE greatly doubt," observes the *Irish Farmers' Gazette*, "if anywhere else is to be found a more extensive or more interesting series of HELLEBORES than are to be found AT GLASNEVIN, not only in the way of species and established varieties, but notably in the several novel and beautiful forms originated there by hybridisation, and now developing their colours and character. Mr. Moore is following up the work, and at the present moment has a large number of seedlings from last year's crossing and seed-saving."

— In a Hand Guide to the CEYLON BOTANIC GARDENS recently issued by Dr. Trimen the following interesting particulars are given:—"The Royal Botanic Gardens at Peradeniya were established in 1821, six years after the final occupation of the Kandyan Kingdom by the English. The site is less than four miles from Kandy on the Colombo road, and occupies a loop of the river Mahaweli, which surrounds it on all sides except the south, where it is bounded by the high road. The area, nearly 150 acres in extent, is beautifully undulated, its average elevation above sea level being about 1540 feet. The climate is hot, moist, and very equable; the mean annual temperature is about 77° F., April and May being the hottest and December the coldest months. Rain falls on about 200 days in the year, the annual rainfall being about 85 inches; it is pretty evenly spread through the year, but is heaviest in October and November and in June, at the full establishment of the N. E. and S. W. monsoon, respectively. February and March are the driest months, but even then there are showers at no distant intervals. Before its occupation as a Botanic Garden the greater part of the land had been a royal demesne occasionally occupied as a residence by the Kings of Kandy. The earth-mound and ditch along the south boundary are still evident, and remains of stone buildings have been found. The name *Péra*, Guava, and *deniya*, an enclosed place—indicates its use as a fruit garden of which the existence of some very old Mango trees is further evidence. On another part of the site stood a small temple or flower shrine and priest's house, abandoned, however, before the formation of the garden. This garden now contains considerably over 2000 species of plants. The Director has also under his charge, as adjuncts to the Peradeniya Gardens, smaller branch establishments in different climatic districts of Ceylon. Hakgala Gardens are situated at an elevation of 5500 feet about six miles to the east of Nuwara Eliya on the road to Badulla. They were opened in 1860 as a Cinchona nursery. The climate admits of the cultivation there of numerous European and Australian plants, and those of the tropical mountain regions. Henaratgoda Garden is a completely tropical one, scarcely above sea level, and in a wet steaming climate which varies little. It is about three-quarters of a mile from the railway station of the same name on the Colombo-Kandy railway. Many of the plants grown at Peradeniya flourish there with far greater luxuriance, and others can be cultivated there only. It was opened in 1876. Anuradhapura Garden. —This is in process of formation at the ancient capital of Ceylon, ninety

miles north of Kandy (seventy-four from Matale), in a district which possesses a hot dry climate with a short rainy season, like the Carnatic or Coromandel Coast. Here such plants and crops as are intolerant of continuous and excessive moisture can be cultivated."

CHRYSANTHEMUM LORD ALCESTER.

I DESIRE to state that the above-named variety is identical with my Princess Imperial, which I exhibited in an undeveloped form at the Westminster Aquarium in November, 1882.

Mr. Wills procured a young plant from me last spring, from which he obtained the magnificent blooms exhibited by him in November, 1883, at Southampton and Kingston-on-Thames, for which he obtained first-class certificates. Had I been consulted I should have preferred its retaining its original name. Be it understood, I am not writing in a spirit of antagonism to Mr. Wills. He will share equally with me in the proceeds; but in fairness to others who purchased plants of me, and who are, as yet, unaware of the change of name, I feel bound to make this explanation.

It was arranged between Mr. Wills and myself that he should do the selling, but as I hold the stock, and he was unwilling to make the necessary explanation, I have decided to take the orders and execute them direct as per advertisement. — HENRY FREEMANTLE, *Bishop's Hull Taunton.*

P.S.—Princess Imperial, *alias* Lord Alcester, is a sport from Empress of India, and was raised by me five years ago.—H. F.

CONTROVERSY.

WHEN the writer was a learner he was for several years connected with debating societies in a town, and had good opportunities of coming in contact with young men with better opportunities and better educated than himself, and he looks back to that time as a very agreeable period of his life, when he learned much that has been of great service to him since. At one debating club which he attended twice a week the debates were often very keen, and one of the most formidable disputants was a young student, now a Scottish parish minister, who was a terrible catechist more than anything else, and whose "whys" and "wherefores" and habit of probing opponents' theories to their source caused him to be regarded with great deference and circumspection by the rasher and more speculative minds after two or three encounters with him. Well, this young student gave the writer this excellent advice in the following or similar words:—"Strive," he said, "to get an accurate knowledge of your subject, and whether speaking or writing never advance anything confidently, or as a fact, which you are not sure about. On the other hand always drive at the foundation of your opponent's argument, as if you can find a flaw in his premisses you are far more likely to defeat him there than by wrangling over side-issues, which tend to confuse debate; press him for reasons and proofs, and probe him closely on all vital points. If your opponent be a reasonable man he will be only too glad to satisfy you, and you will probably learn something; if he is not a man of this stamp the probability is he will lose his temper, and perhaps become abusive and mount the 'high horse,' but if you stick to him he will have to give way in the end—at all events he will be silenced if he has any sense. A man who persists in mere dogmatic assertion is not worth arguing with."

These remarks have been suggested by the controverted articles in the Journal lately. It is admitted by scholars that among ordinary writers and speakers on the various subjects that interest mankind, a very small proportion only know how to state their case logically, and fewer still know what "demonstration" means. It may be seen in our gardening papers often enough that writers as a rule set out by taking something—their premisses—for granted, quite wrongly perhaps, and on this foundation they proceed to build some hypothesis or other, and from it to draw false conclusions that only widen the area of error. Much needless space, too, is occupied, as anyone can see, by writers not correctly apprehending what they read, and not being able to state clearly what they think themselves; and this takes no account of those numerous communications which are passed into the wastebasket by editors, but which they would no doubt be glad to publish if they could see their way to do so. As an example of the aimless questions sometimes put, and supposed by the questioner to be full of significance, I may refer to one put lately by a correspondent, who desired to know in connection with stored-up sap where the young shoots derived their sustenance from that grew upon Vine wood that had been bottled to preserve the Grapes upon it. Had this writer asked himself why he put the shoots with the Grapes upon them in the bottles of water and other ingredients, in the first instance, he need not have asked such a question.—CASUAL.

VINE ECONOMY.

ABOUT New Year's day, 1882, several large Oak trees growing on a steep hillside near here were uprooted by the wind, and fell with their tops directly down the hill. Nearly all the roots were severed; a few might have escaped with a severe wrench. The ball of earth torn up with them was very small. They burst into leaf as usual, and remained green about the usual time; but they made no growth, except one of them, at the top, which was now the lowest part of the tree. There, on the points of what had been the highest branches, I was surprised to see watery shoots of from 12 to 16 inches long, bearing leaves nearly as large as my hand, or three times the size of the others. The place was

shaded and the summer a wet one, but I would like to hear it further explained.

Although I agree with Mr. Taylor as to Vines storing sap, I cannot agree with him as to the very peculiar economy of that plant. The Willow, Bird Cherry, and other trees and shrubs will strike root from either end with almost equal readiness. If Vines do subsist almost equally on bare rocks and decayed horseflesh they are very peculiar, but perhaps that power their roots possess of penetrating solid masonry may enable them to extract something out of rocks also. The Oaks I have already mentioned made leaf-growth with very little, probably with no root-growth at all. Many hardwooded trees (Elms, for instance), send out roots to long distances and through what appear to be very uncongenial substances. I once saw a rope-like mass of fibres 6 or 7 feet long taken from inside a lead water pipe, where it had originally penetrated through a very small hole. I think it was Elm, but am not quite certain. Most fruits drop off when they reach maturity. Probably if they were, like the Grape, persistent, putting the branch on which they grew in water might preserve them in the same way.

Anyone wishing to find an instance of stored-up sap becoming liquid at the approach of spring has only to cut a few Potatoes two or three weeks after this. They will be found to be unusually juicy, and to my taste have a particularly fine flavour when cooked. I believe sap is stored up in the Vine and deciduous trees, shrubs, and climbers in the same way.—DUGALD.

HARDY PLANTS AND THEIR SYNONYMS.

Of late many complaints have been made anent the difficulty of procuring plants true to name from nurserymen, and as a step in the matter I have recorded many of the most striking and most common synonyms for the benefit of those who have not a large collection, and therefore have not the opportunities of identifying the plants. The nomenclature adopted is that employed at Kew, and if taken up by cultivators will no doubt be the dawn of a system, when confidence in the general naming will invite exchange without reserve. The following list includes only a few of the principal examples, and might be profitably supplemented by your correspondents as experience enables them.

CORRECT NAMES.	SYNONYMS OR GARDEN NAMES.
<i>Achillea Ptarmica</i>	{ A. alpina A. serrata Ptarmica alpina
<i>A. tomentosa</i>	A. aurea
<i>Aconitum paniculatum</i>	A. septentrionale
<i>Actinomeris helianthoides</i>	Coreopsis philadelphicum
<i>Alyssum podolicum</i>	Schivereckia podolica
<i>Androsace septentrionalis</i>	{ A. alsinoides A. lactiflora A. coronopifolia
<i>Armeria plantaginea</i>	A. dianthoides
<i>Asperula arvensis</i>	A. splendens
<i>Aster albescens</i>	A. azurea setosa
<i>Alyssum podolicum</i>	A. cabulicus
<i>Bongardia Rauwolfii</i>	Microglossa albescens
<i>Campanula barbata</i>	Schivereckia podolica
	Leontice chrysogonum
<i>C. garganica</i>	C. alpina
	C. Wrightii
	C. Elatine
<i>C. glomerata</i>	C. pulcherrima
	C. dahurica
<i>C. fragilis alba</i>	C. elegans
	C. speciosa
	C. Barrillieri alba
	C. brunonis
<i>C. latifolia</i>	C. eriocarpa
	C. macrantha } varieties
	C. Van Houttei }
<i>C. alliariaefolia</i>	C. lamiifolia
	C. primulifolia
<i>C. nitida</i>	C. planiflora
<i>C. persicifolia</i>	C. coronata
<i>C. pusilla</i>	Adenophora coronata
<i>C. Portenschlagiana</i>	C. cespitosa
	C. muralis
<i>C. sarmatica</i>	C. betonicifolia
	C. commutata
	C. gemmifera
	C. tubulosa
<i>Campanula Trachelium</i>	C. plicatula
	C. urticifolia
	C. altaica
<i>Calendula ægyptiaca</i>	C. stellata
<i>Callirhoe papaver</i>	C. pedata
<i>Calamintha grandiflora</i>	C. involucrata
<i>Centaurea dealbata</i>	Melissa secunda
	C. rutifolia
	C. imbricata
<i>Chrysopsis villosus</i>	Amellus villosus
	Diplopappus villosus
	Inula villosus
<i>Codonopsis rotundifolia</i>	C. lurida
<i>C. ovata</i>	Glossocomia ovata
	C. bulbosa
<i>Corydalis Halleri</i>	C. fabacea
	C. solida
<i>Crambe pinnatifida</i>	C. palmata
<i>Digitalis lutea</i>	D. parviflora
<i>Dicentra cucullaria</i>	Corydalis cucullaria
	Fumaria cucullaria
	Cnennaria bulbosa
<i>D. formosa</i>	Corydalis formosa
	Fumaria formosa
<i>Dondia Epipactis</i>	Hacquetia Epipactis
	Astrantia Epipactis
<i>Doronicum caucasicum</i>	D. cordifolium
	D. orientale

CORRECT NAMES.	SYNONYMS OR GARDEN NAMES.
<i>Erigeron aurantiacus</i>	E. pulchellus
<i>E. glabellus</i>	E. glandulosus
<i>Erodium pelargoniflorum</i>	E. mauritanicum
<i>E. petroea</i>	E. absinthium
<i>Eupatorium ageratoides</i>	{ E. Fraseri E. sessilifolium
<i>Gentiana septemfida</i> var. <i>cordifolia</i>	G. gelida ("Pact. Mag.")
<i>Geum japonicum</i>	G. macrophyllum
	G. radiatum
	I. triflora
<i>Iris versicolor</i> var. <i>virginica</i>	I. subiflora
	I. virginensis
	L. gracilis
<i>Liatris spicata</i>	L. graminifolia
<i>Linum flavum</i>	L. luteum
<i>Lindelophia spectabilis</i>	Cynoglossum montanum
<i>Loasa prostrata</i>	L. bryonifolia
<i>Lithospermum prostratum</i>	L. fruticosum
	L. Sieboldii
<i>Lychuis grandiflora</i>	L. Haageana
	L. cardinale
<i>Malvastrum lateritum</i>	Malva laterita
<i>Mandragora officinarum</i>	M. vernalis
	M. acaule
<i>Malvaviscus geranioides</i>	Modiola geranioides
<i>Moricandia arvensis</i>	Brassica perfoliata
<i>Eriothera biennis</i>	CE. Lamareckiana
<i>CE. linearis</i>	CE. riparia
<i>CE. fruticosa</i>	{ CE. Fraseri CE. Youngi
<i>Orobis luteus</i>	O. aurantiacus
<i>Papaver alpinum</i>	P. nudicaule
<i>Pentstemon Richardsonii</i>	P. argutus
	P. obovata
<i>Phlox reptans</i>	P. stolonifera
	P. prostrata
	P. canescens
<i>Phyteuma campanuloides</i>	P. limoniifolia
	P. Charnelii
<i>Polygonum affinis</i>	P. brunonis
<i>Ranunculus carpetanus</i>	R. uniflorus
	R. alpinus
	R. brutius
<i>Rudbeckia angustifolia</i>	Echinacea angustifolia
<i>R. pinnata</i>	Obeliscaria pinnata
<i>R. purpurea</i>	Lepachys pinnata
<i>R. hirta</i>	Echinacea purpurea
<i>R. speciosa</i>	R. chrysomelia
	R. Newmanni
<i>Scabiosa Parnassi</i>	S. pteroccephala
<i>Silene ciliata</i>	Pteroccephala Parnassi
<i>S. tenuis</i>	S. Groefferi
	S. rupestris
	S. stylosa
<i>S. Zawadskii</i>	S. caucasica
	S. odontopetala
	S. ornata
<i>Saxifraga ligulata</i>	S. Schmidtii
	S. crassifolia
<i>Scutellaria orientalis</i>	S. caucasica
<i>Sidalcea oregana</i>	Nuttallia malvæflora
<i>S. oregana alba</i>	Sidalcea caudata
<i>Silphium ternatum</i>	S. ternifolium
<i>Spirea digitata</i>	S. palmata
<i>S. Ulmaria</i>	S. Kamtschatica
<i>Telekia speciosa</i>	T. cordifolia
	Bupthalmum cordifolium
<i>Trollius asiaticus</i>	T. Fortunei
	T. altaicus
<i>T. europæus</i>	T. Ledebouri
	T. patulus
<i>Tulipa australis</i>	T. persica
<i>Valeriana alliariaefolia</i>	V. asarifolia

—SPECIALIST.

PAST v. PRESENT WRITERS.

ADVICE TO YOUNG GARDENERS.

WITH your permission I would like to make a few remarks on the numerous letters which I have had much pleasure in reading in your columns the last few weeks. I was pleased to see that my "Word to Young Gardeners" was the means of drawing one of the old school from his shell, and I must thank him for his flattering words of approval. At the same time I would suggest that he has not made himself fully understood.

Thirty years ago young gardeners were not so numerous as they are now. Much of this increase has taken place in the neighbourhood of our large towns. To these centres many of our young men from the country find their way when comparatively inexperienced in their business, as they must of necessity be of town social life and manners. The great majority in search of fresh places find their way into some of our large nurseries. A few months in one of these is by no means lost time. A slow youth will possibly get smartened up a little, a conceited one is very likely to get some of it taken out of him, and the steady observant youth will pick up many hints worth remembering. While so situated, or when in a gentleman's garden near a town, those who have a real love for gardening will profit by the change. They will visit all public parks and gardens, nurseries and private places of interest, and always be adding to their store of knowledge.

On the other hand, those who have no particular interest in their business will rush here and there after "wonderments," and they will generally find plenty of companions ready to lead the way into all sorts of temptations entirely new to our young man, and if he is fascinated with them he may go on wasting his time, his hard-earned wage, and acquiring habits that will be difficult to shake off if too long indulged in. Such men when sent to an out-of-the way country place are very apt to make a speedy return to the same or some other

nursery, and so they get into that unsettled state that they make but little progress, and are often a continual source of anxiety to their employers. I am afraid it is by such men that "H., Notts," has judged young men as a whole; but I hope when the more intelligent class is placed in the balance with them that the result would not be unfavourable to the latter.

Some time ago I went with a neighbour to see a friend at some little distance from home. In the course of our conversation our friend remarked that he had had a call of two young men from such a place near us a short time before. "Oh!" exclaimed my neighbour, "why those two Scotch fellows have been to every place within twenty miles." Now I think these are the sort of "fellows" to get on; and I think this cultivating the acquaintance of other gardeners and seeing their gardens as a means of improvement should be encouraged.

I must thank, may I say, our Chaplain for his timely support in his new year's address. May his words be taken more seriously to heart by "A Young Gardener" and "T. L." than they are inclined to look upon the advice offered by myself. I am sorry that my letter, in the ideas of these two young men, savoured so much of the "lecturing" or "preaching" style. "A Young Gardener" so links my humble advice and the remarks of "H., Notts," together, that it would lead your readers to believe we had made a united sweeping condemnation of all pleasure for young gardeners. This is not quite in accordance with facts. My "lecture" was directed against going to extremes—as I unfortunately did myself in some matters—rather than to the discouragement of all relaxation. I like music, and dancing too, and like to see young men acquit themselves creditably in the social circle on occasions when little accomplishments and good manners are expected to shine. The danger is when fascinating pastimes are allowed too much scope. There are men, and young men too, who can take these things, but there are others who cannot; and when, as is often the case, young men take to continually scraping on a fiddle, strumming on a concertina or dancing, and singing tap-room songs, woe be to all within hearing of such. If young men have an ear for music, let it be devoted to something more elevating than that. Let them learn to read music and practise part singing, and they will have a never-failing source of pleasure, either in company of their fellow men, or if in some lonely country place where but few opportunities of intercourse with the outer world occur. I hope "A Young Gardener" is one of those who can take things in moderation, and that he does not too frequently feel disinclined "for harder studies."—A WORKING GARDENER.

THIS subject has been the means of raising a somewhat lively discussion in the Journal, and is one in which all who care for the future of gardening should take an interest. Though not disposed to side entirely with either of those who have been contending in the matter, the writer would admit at once that there is truth on both sides. There are men of the present day who do not come up to the standard of many of those of past years, but at the same time there are numbers of young men who give promise of being at least equal to any of those who have preceded them. The numbers that now are following the gardening profession greatly exceed former days, consequently among so many there is not much difficulty in picking out instances of bad conduct, want of application, and disregard of the study required to enable a man to become a credit to his calling. But there can also be numerous cases of diligent study and exemplary conduct pointed out, and when such is the case there cannot be much fear of the gardening profession retrograding so much as some would assert.

No doubt there are many young gardeners who have not very many advantages, and who avail themselves to the utmost of what they have; and on the other hand there are some who, though favoured with many opportunities for self-improvement, wilfully neglect them. Bothy life now-a-days is, as a rule, much more comfortable than it was thirty or forty years ago, and the wants of the young men are undoubtedly more fully supplied now than then.

There is one evil of the present day that sometimes causes much annoyance—that is, when masters give good characters to men who in reality are not deserving them. Mutual confidence between head gardeners is sometimes much endangered by this evil. No doubt it happens through kindness, and full allowance must be made. But a little wholesome truth sometimes would be the means of not only preventing another employer being deceived, but also of making the young man endeavour to mend his ways. "Honesty is the best policy," applies with equal force in things relating to gardening and gardeners as it does to any other walk in life, and all should endeavour to proceed on thoroughly honest principles.

That gardening is a most difficult and complex study must be admitted, so much the more necessary is it that young men devoting themselves to it should use every means in their power to attain to the highest position. A kindly feeling between head and under gardeners must in all cases go a long way towards making young men take more interest in their calling. That this feeling exists in most cases is pretty certain. The advice to not only read a gardening periodical, but also to obtain, bind, and preserve for reference, is sound, and should be followed by all. There can hardly be a case now-a-days where a man cannot afford to do this. There is some little thing he can dispense with in order that a periodical may be taken. Some good is derived from reading papers at meetings, but not so much, I think, as others seem to imagine. There is a little danger of young men thinking themselves much more clever than they really are after they have contributed a paper or two to these meetings. Continual and intelligent observation of all going on around

copious notes, careful reading and thinking over all articles in the periodical they take, will help much more to improve men than an occasional paper read at a meeting, if such is not combined with steady and judicious study.

Books on botany and gardening subjects can be obtained at cheap rates now, and should be acquired as soon as funds permit. Knowledge gained and properly stored in the mind is always of service.

"Thus useful arms in magazines we place,
All ranged in order, and disposed with grace;
Nor thus alone the curious eye to please,
But to be found, when need requires—with ease."

—VITIS.

[A letter from our able correspondent and valued old contributor, "H., Notts," will appear in a future issue. He has a good and good-humoured word for all, and an excellent retort for most who have pressed him rather closely in the discussion which he raised.]

CACTACEOUS PLANTS.

(Continued from page 42.)

GENERAL CULTURE.

THE numerous members of the Cactus family are exposed to widely differing temperatures in their native habitats, owing to the extent of the American continent over which they are distributed, but also to the great elevations on the mountains of those regions at which some are found, and it is principally in regard to heat that the treatment of Cacti has to be varied. A large number, probably the majority of known species, frequent the desert-like plains and the rocky volcanic districts of Chili and Mexico, where they grow and flower under the fiercest tropical heat, not only uninjured, but positively luxuriating in their strange fashion in the burning rays of an unclouded sun. There for the greater portion of the year the soil is parched, and the atmosphere suffocatingly dry, and no other plants can exist except those which have become adapted to the peculiar conditions of the climate, either resembling their Cactus neighbours in developing a succulent growth containing an abundant store of fluid support, or possessing foliage protected by a thick impervious leather-like epidermis, which effectually enables them to withstand the rapid evaporation constantly proceeding in such regions. It is not easy to exactly reproduce these conditions artificially when cultivating the plants in our northern climate; we can, however, insure a sufficiently high temperature with the requisite aridity of soil or atmosphere, and this seems all that is needed, though undoubtedly the maturing effect of a roasting sun is missed to some extent. For these really tropical Cacti a special house is required to give the cultivator an opportunity of growing them to the best advantage, as when included in a mixed collection of plants they are usually exposed to a much greater humidity than is beneficial to them, and they consequently flower less freely. This applies especially to the majority of the Echinocactuses, Melocactuses, Opuntias, and Cereuses, though in the latter genus there are several exceptions, as some species require the moist atmosphere of an ordinary stove. Nearly all the family need a free exposure to the sun; but even amongst the tropical species there are exceptions to this rule, for the Rhipsalises and Epiphyllums, being epiphytal in habit, succeed best in moderate shade, and can indeed be associated with such moisture-loving plants as Orchids and Ferns.

In ascending the mountains of central and northern America, where the Cacti abound, some of the wandering species of most of the genera are found similarly happy in much lower temperatures, until at an altitude of 8 to 10,000 feet in the Rocky Mountains some Opuntias and Echinocactuses still form a portion of the vegetation, and are frequently exposed to frosts and snow. It will thus be seen that in a broad sense the Cacti may for cultural purposes be divided into three groups:—1st, the tropical species from the lowlands and plains, extending for a short distance up the mountains; 2nd, the intermediate species, which are found on the extreme northern limits of their distribution, and which rise to a considerable height in the mountains, but still below the frost line; and 3rd, those which inhabit the highest elevations. The two first would respectively require the temperature of a dry stove and a greenhouse, while the remaining group includes those which have been found to be hardy in England.

Except where very large collections are formed and every effort is made to imitate the natural conditions, houses cannot be specially devoted to each of the two former groups, and the Cacti are so extremely accommodating that they will apparently conform themselves to any reasonable treatment. Wherever these plants are made a speciality one house at least can be appropriated to them, and this is really all that is necessary, for the species from the tropical regions can be placed at the warmest end, the intermediate and cool species being accommodated in different positions according to the varying temperature. A third class of cultivators, however, and by far the largest, are those who grow a moderate collection as examples of the most curious phase of vegetable life, and who cannot give them special quarters, being compelled to grow them with other plants. In this case the best general plan to adopt is to give the plants cool and dry treatment during the winter, a greenhouse or conservatory being a suitable place; while in the spring and summer, when growth is made, a heated frame facing south is admirably adapted for them, as there they can be arranged near the glass, fully exposed to the sun, and provided with sufficient moisture to stimulate growth without rendering it weak. The last method is an excellent one, even where the largest collections are grown, and I have obtained better results by so treating them than by any other method. Some, indeed

place the plants outside in a sunny position during the summer, but in our uncertain climate this is attended by many disadvantages, for they are liable to be much injured by sudden storms of rain or wind, and the varying temperature alternately accelerates and checks the growth, which consequently rarely becomes properly matured, and the delicate species are often irrecoverably damaged. On the continent, where the summer climate is more regular and the sun power greater, the case is quite different, and the practice is attended with proportionate success.

The cottager and others who grow their small collections of Cacti in rooms must necessarily confine their attention to comparatively few species and varieties, but it is surprising how much pleasure and interest may be obtained from even such modest efforts as these. A table or shelf near a window is the position usually assigned to them, and under the circumstances it is the best they could have, as the plants are well exposed to light, they are surrounded by a dry atmosphere, and they are safe from frost. If in addition to these matters the plants are accorded a moderate share of attention in regard to the supply of water, there are very few of the Cactus family that will not thrive and occasionally flower. The *Cereuses*, *Opuntias*, *Echinocactuses*, and *Mamillarias* can all be so grown, but if a glass case can be provided for the smaller and more delicate kinds, it will be advantageous in protecting them from the dust and smuts that so soon accumulate in rooms, and which cling to the spines and surface of the stems, effectually spoiling their appearance and preventing their progress. Such cases can be readily constructed, or they can be purchased ready made, as several firms now sell them for the miniature Cacti that have obtained a good share of popularity during recent years. These miniature plants are particularly well adapted for rooms, and in their bright red diminutive pots have a very lively appearance. They are sold, too, at such moderate prices that they are within the reach of all. As room plants indeed the Cacti are unexcelled, for though they do not possess the brilliant and profuse flowers of *Pelargoniums* and other ordinary softwooded plants, they never bear the sickly and miserable aspect that such too often do when they have been long grown indoors. I would by no means advocate the exclusion of the ordinary popular window plants, but as a reserve force the Cacti are invaluable.

MAMILLARIA, HAWORTH.

It would be very difficult to find any plants in the whole vegetable kingdom which present such beautiful examples of symmetry as the *Mammillarias*, and in their own family they are also unique in this respect, for though many of the grotesque *Opuntias*, *Cereuses*, and *Echinocactuses* possess larger and more brilliant flowers, and they are surpassed in horticultural value by the *Phyllocactuses* and *Epiphyllums*, yet for delicacy of design they are unrivalled. A large number of them resemble exquisite pieces of mechanism finished with the greatest minuteness and accuracy. Others, again, might be imagined to have undergone a kind of crystallisation, their whole surface being frosted over with star-like spiculae arranged with geometrical precision; and still others appear as if covered with the finest gossamer. The graphic remarks of Dr. Lindley which accompanied the figure of *M. tenuis* in the "Botanical Register" in 1832 might well be applied to several species with even more accuracy than in that case:—"Gentle reader, hast thou never seen in a display of fireworks a crowd of wheels all in motion at once, crossing and intersecting each other in every direction, and canst thou fancy those wheels arrested in their motion by some magic power, their rays retained, but their fires extinguished and their brightness gone. Then mayst thou conceive the curious beauty of this little herb, a plant so unlike all others that we would fain believe it the re-animated spirit of a race that flourished in former ages with those hideous monsters whose bones alone remain to tell the history of their existence in the quarries of our sandstone, slate, and clay." Strangely beautiful indeed are most of the *Mamillarias*, and in contrast with their neat rosettes or stars of spines are the rosy, yellow, and white flowers, which are generally followed by small berry-like coral-coloured fruits, that, dotted amongst the spines, add another phase to the attractions of these plants. With so much to recommend them it is not surprising that they have become great favourites with cultivators of Cacti, and with that portion of the public who have obtained any knowledge of them.

The genus *Mamillaria* was founded by Haworth upon the Cactus *Mammillaris* of Linnæus, one of the oldest cultivated species, and this was re-named by the first-mentioned author *M. simplex*. Two others were associated with—viz., *M. prolifera* and *M. discolor*, which at that time, 1819, were all that were known. Since then, however, the number of described species has been increased to 300, which abound in Mexico, the head quarters of the genus, some being also found in the West Indies, Brazil, and Bolivia, their habitats and the elevation at which they are found varying considerably. In characters of flowers and fruit the *Mamillarias* resemble several other genera, but the chief distinguishing mark is found in the mamillæ, papillæ, or tubercles from which the plants derive their name. The stem is cylindrical, globular, or conical, seldom exceeding 10 or 12 inches high under cultivation, and more frequently only 3 to 6 inches high and 1 to 3 inches in diameter. From this axis arise the teat-like projection termed the mamillæ, but for which the word tubercle is here adopted. These vary in size from minute elevations scarcely a sixteenth of an inch high to some 1 inch high and as much in diameter; in form they also vary, from cylindrical, spindle-shape, conical, or ovoid to angular and irregularly pyramidal. They are arranged spirally round the stem with great regularity, and each bears at its apex a cluster of spines, often in two series, the outer white, very fine

and hair-like, from six to twenty, very closely set, and radiating laterally in a star-like manner, much resembling the pappus crowning the fruits of some plants in the Compositæ family; the inner series is usually composed of a few stiff spines, sometimes hooked at the points, and usually coloured differently from the others, being yellow, brown, red, or purplish.

The variations in these organs or appendages furnish the chief characters for distinguishing the species, and upon them some authors have constructed an elaborate system of classification in groups and sections. In Hooker and Benthams "Genera Plantarum," however, Engelmann's three subgenera *Eumamillaria*, *Coryphantha*, and *Anhalonium* are adopted for the main divisions. The first includes the majority of the species, which are characterised by the tubercles not being furrowed, and by the flowers being produced from the axils of the previous year's tubercles—that is, from the side of the stem. The second has furrowed tubercles, and the flowers produced from the apex of the stem or from the axils of the tubercle of that season's growth. The third was constituted a genus by Lemaire, but is regarded as inseparable from the *Mamillarias*, though in general appearance they are quite different, the tubercles in *Anhalonium* being spreading, thick, and leaf-like, somewhat after the style of the *Gasterias*.

Culture.—Many of the *Mamillarias* are found in limestone districts, and though inhabiting varying climates and elevations, they may be all grown in an intermediate temperature, such as a greenhouse, where they can be protected from frosts during the winter, but a higher temperature is needed during the spring and early summer when growth is advancing. A free exposure to light and sun is requisite at all times. The soil should consist of two-thirds sandy loam and one-third finely broken bricks and lime rubbish. The pots must be well drained, and water should always be carefully supplied, but much injury is often done by keeping the plants too dry. They should be examined at least once a week, even in the winter, and if the temperature is above 50° and the weather bright they may be safely watered. In colder quarters little will be needed during December and January. These plants may be advantageously grown in a glass case, as this protection keeps the dust from their beautiful spines.

Propagation.—The majority of the tufted and branching species can be readily increased, either by the offsets from the base, or by removing the side branchlets. The former only need potting like ordinary plants, keeping them rather dry until growth commences. The branchlets can be laid upon dry soil until some roots show at the base, and they can then be treated similarly. The more delicate sorts, or those that produce few offsets, can be grafted on any of the *Cerei*, to which they readily unite; and this has a double advantage, for while the plants often grow more strongly, they are also less liable to decay, as such forms will do unless very great care is exercised in supplying water. *Cereus tortuosus* and others of slender habit may be chosen for the small-growing species.

SELECT SPECIES.

M. ANGULARIS, *Hort. Berol.*—One of the more robust forms. The freely branching habit gives it a very distinct appearance, and when well grown it has a fine appearance. The largest specimen I have seen is in Mr. Peacock's collection, and is over a foot in diameter; in excellent health. Decandolle's *M. triacantha* and *M. cirrifera* of some gardens (not of Martius) have been regarded as varieties of this species, the last named corresponding to Salm's *M. angularis* var. *pulvenscens*. It can be readily increased by offsets. Introduced in 1835. Strong-growing; stem freely branched, 4 to 8 inches high, 2 inches in diameter; tubercles conical, thick, a quarter of an inch long, having a tuft of white down at the top, and four or five white spines of irregular length; flowers rosy purple.

M. BICOLOR, *Lehmann.*—The whole surface of this plant appears as if covered with a fine cobweb, owing to the numerous closely-set white hairs which form the outer series of spines; and if grown under a case or in a position where the dust can be excluded it is one of the most striking of the genus. Some crested forms of this are grown, but they possess little beauty, and are usually simply deformities. The species was introduced in 1835. Very distinct; stem cylindrical, somewhat club-shaped, 8 to 10 inches high, 2 to 3 inches in diameter, branching from near the base; tubercles very short, dark green, but hidden by the spines, which are in two series, the outer fine and hair-like, closely set, and spreading, the others being fewer, erect, and of a yellowish tint. The flowers are small and purple.

M. CAPUT-MEDUSÆ, *Otto.*—The Medusa's Head *Mamillaria* is by no means so formidable as its name implies, and though not so delicately beautiful as its neighbours it possesses a boldness that forms a striking contrast with them. A fine specimen, probably the largest in England, is included in the collection of these plants grown by Mr. Boller at the Wood Green Nurseries, Harrow Road, N., for which he has been awarded numerous first-class certificates at metropolitan and provincial shows. Stem usually 4 to 6 inches, or in exceptional cases 8 inches in height, globular or occasionally columnar; tubercles four-angled or ovate, bearing four small white spines and two thicker and stronger ones; flowers white, about 1 inch in diameter.

M. CIRRIFFERA, *Martius.*—A neat and pleasing little plant, which does not flower so frequently as several others, but is well worth growing on account of its symmetrical appearance. Introduced in 1835. A freely branching and pretty species, with a cylindrical stem 3 to 4 inches high; tubercles short and conical, quarter of an inch long, glaucous green, and furnished with a crown of yellow spines; flowers bright rose, with yellow anthers.

M. DOLICHOCENTRA, *Lemaire.*—A somewhat variable species of strong habit, especially abundant in the neighbourhood of Xalapa, and included in most large collections of Cacti. It was grown in the continental collections thirty years ago, but the date of its first appearance in England is uncertain. Several varieties have been described under the names of *phæacantha*, *straminea*, *Galeotti*, &c., but the last is generally considered synonymous with the first, and they are all chiefly confined to continental gardens. Stem

stout, 6 to 8 inches high, 3 inches in diameter; tubercles conical, narrow, half an inch long, crowned with small tuft of white down and a few white spines of irregular length; flowers of moderate size, pale rose or reddish crimson; fruits red.

M. FISSURATA, *Engelmann*.—This plant, so far as I can ascertain, is not in cultivation in England, and is named here chiefly to illustrate the *Anhalonium* section of the genus, of which it is a very good type. It is well described and figured by Engelmann, and presents a very different appearance to the *Mammillarias* generally, though not structurally distinct. The root is thick and turnip-like, the leaves being triangular in form, very thick, and with the upper surface strangely furrowed; they are arranged in a closely imbricated manner, very suggestive of some *Gasterias*, and from the centre arises the whitish pink flower about 1 inch in diameter and surrounded at the base by dense woolly substance. It is found in the same district as *M. pectinata*, chiefly on hard gravel or limestone soils.

The species of *Anhalonium* that are better known to cultivators are *A. elongatum*, *Salm.*, *A. prismaticum*, *Lemaire*, and *A. sulcatum*, all of which more or less resemble *M. fissurata* in the form of leaves and habit. They are curious species, and bear strange resemblance to other plants—for instance, the leaves of *A. elongatum* have been aptly compared to those of *Crassula perfoliata*, and of *A. prismaticum* and *A. sulcatum* to *Aloes*, especially *Aloe retusa*. These are all considered as *Mammillarias* now, Hooker and Bentham in this view following Engelmann and Miquel.

M. GRACILIS, *Pfeifer*, var. *PULCHELLA*.—Amongst the small-growing cylindrical-stemmed species of *Mammillaria* none surpass this in delicate beauty. It is indeed an exquisite little gem, most symmetrical in the arrangement of its spines, and is moreover very easily grown and readily increased, as the diminutive side branches or offsets are produced in great numbers. Very dwarf, 1 to 2 inches high; stem cylindrical, half an inch in diameter; tubercles small and green; spines in one series, white, spreading and closely set; flowers pale yellow, of good size, and attractive.

M. MICROMERIS, *Engelmann*.—Unique in form and very beautiful, readily distinguishable from all other species in cultivation, but resembling one described by some writers as *M. microthele*. It is a Mexican plant, and according to the author of the above name is found "from El Paso to the San Pedro river, also in a single locality east of this river, in naked places on mountain tops or sides, only on limestone, never in the porphyritic region." An exceedingly fine engraving of the plant is given in Engelmann's "Cactaceæ of the Boundary," and the distinguishing characters of a variety named *Greggi*, which is of rather larger growth, are also shown. In the species the stem resembles a flattened ball 2 inches in diameter and $1\frac{1}{2}$ inch high, having in the centre at the apex a circular tuft of wool-like down about 1 inch across, surrounded by a fringe of stiff white spines; tubercles very small and closely set, each bearing a diminutive star of radiating white hairs, which fall from the older tubercles, giving the lower portions of the plant a peculiar appearance. The flowers are very minute, with about five sepals and petals, pale rose-coloured, and succeeded by red berries one-third of an inch long.

M. MULTICEPS, *Salm.*—Chiefly remarkable for the much-divided character of the stem; the flowers are also of a pleasing shade of colour and produced rather freely. The lower divisions and branches of the stem can be removed and potted when it is desired to increase the plant. Stem dwarf, much-branched or divided, 1 inch high, half inch in diameter; tubercles one-eighth to a quarter of an inch long, narrow, conical, green; spines in two series, the outer white, very fine and numerous, the inner yellow, larger, and stronger; flowers pale yellow with a reddish line in the centre of the petals.

M. NEUMANNIANA, *Lemaire*.—A bold and distinct species, free in growth, and well worth a place in a small collection. Introduced from Mexico in 1845. Stem cylindrical, 5 to 6 inches high; tubercles stout, three-eighths of an inch long, dark green, with a tuft of wool-like material at the apex and a few tawny spines about half an inch long; flowers of a rosy hue.

M. OBIERIANA, *Lemaire*.—An attractive plant, especially when in flower, but at all times it is one of the neatest of the genus, its spines being very regularly arranged, and the contrast in colour between the inner and outer series is striking. Stem cylindrical, 3 to 4 inches high, 2 inches in diameter, very symmetrical; tubercles one-eighth of an inch long, dark green; spines in two series, the outer close and fine, the inner tawny, half an inch to three-quarters of an inch long. Flowers reddish violet.

M. PARKINSONII, *Ehrenberg*.—A very distinct species, of bold habit, and attaining a larger size under culture than the majority of the *Mammillarias*. It is found in several districts of Mexico, principally on calcareous rocks. It has been cultivated in England and on the Continent for some years, but the date of its introduction is uncertain. Stout-growing; stem 4 to 6 inches high, 2 to 3 inches in diameter; tubercles small, each bearing a star of diminutive white hairs, and four to five stiff erect white spines 1 to $1\frac{1}{2}$ inch long tipped with brown; flowers yellow.

M. PECTINATA, *Engelmann*.—Few of the *Mammillarias* equal this in beauty, and it is much to be regretted that the plant continues so scarce in English collections. It is an example of Dr. Engelmann's sub-genus *Coryphantha*, and is said to be found on the limestone hills of the Pecos, whence it was introduced to Europe about twenty or thirty years since. The flowers last a very short time, generally only about two hours in the middle of the day, but they are succeeded by fruits half an inch long, which remain attached to the plant for a considerable time. Stem conical or nearly globular, about 3 inches high and $2\frac{1}{2}$ inches in diameter; tubercles short and stout, each crowned with a rosette of white spines on one series, very even in size and regularly spreading half an inch or more across each star. Flowers yellow, generally produced singly from the apex of the plant and comparatively large, 2 inches in diameter, with very narrow and numerous petals, the sepals being also numerous, the outer reddish green and the inner resembling the petals. The woodcut (fig. 14) is an accurate reproduction of Engelmann's admirable engraving in the "Cactaceæ of the Boundary."

M. PUSILLA, *Decandolle*.—A diminutive but beautiful plant, meriting a place amongst the best forms of the genus. It is interesting, too, as being a native of the West Indies and South America, whence it was introduced in 1820. This species appears to be identical with those described by Harvey and others as *M. stellaris*, and is also probably the *M. stellata* of Loddige's "Botanical Cabinet." Dwarf; stem 1 to 2 inches high, cylindrical-globular; tubercles narrow conical, one-eighth to a quarter of an inch long, dark green; spines in two series, outer numerous, fine hair-like, white, inner fewer, erect,

and brownish. The flowers are freely produced, yellowish, the petals having a central line of rose.

M. RHODANTHA, *Link et Otto*.—The bright colour of the abundant flowers of this plant renders it a charming companion for the others named in this list, and will, moreover, bear a lower temperature than the majority; it has indeed been tried out of doors both here and in France during the summer months. It is a Mexican species, and was introduced in 1836. Several varieties are known and named, such as *neglecta*, *sulphurea*, *ruiceps*, *aureiceps*, and others, but they differ very slightly from the species. Stem 2 to 6 inches long, 2 inches in diameter, freely branching; tubercles conical, one-eighth to quarter of an inch long, having at the apex a tuft of white-down, rays of fine hairs, and six irregular white or yellowish spines quarter to half an inch long. Flowers produced in succession during the summer, bright rose, medium size.

M. SCHIEDEANA, *Ehrenberg*.—One of the prettiest and most distinct of the genus, and is of free growth and flowers profusely, also producing its reddish fruits occasionally, which have a pretty appearance nestling amongst the tubercles. It inhabits limestone districts at considerable elevations in Mexico, whence it was introduced to France in 1838, and to England some

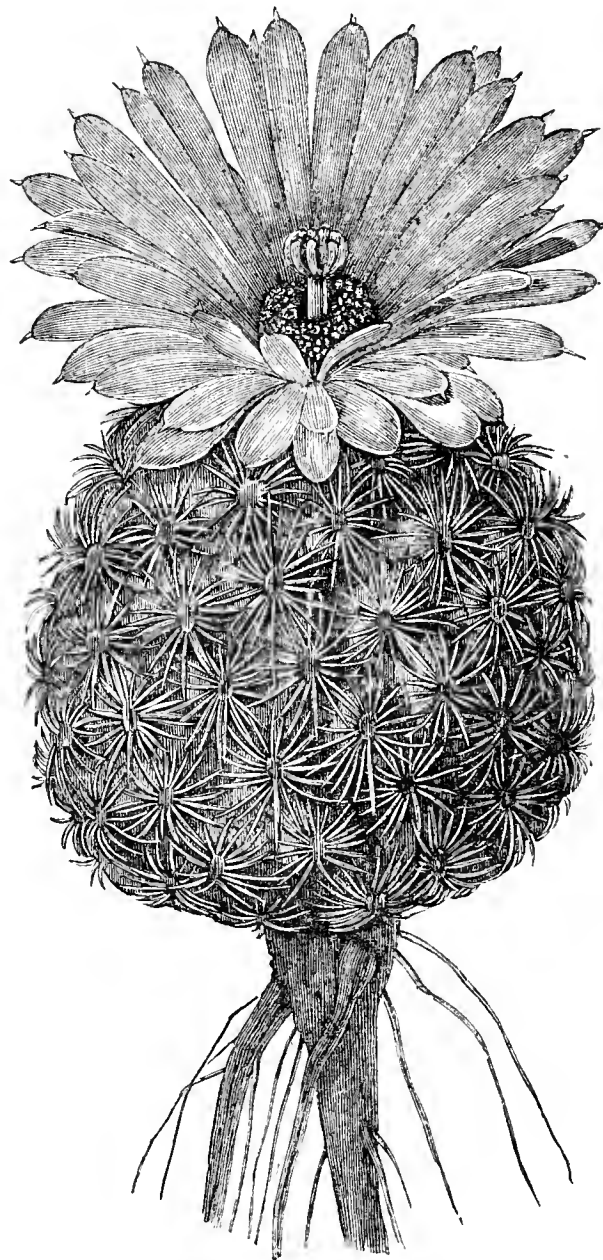


Fig. 14.—*Mamillaria pectinata*.

years later. It should be in every collection. Stem cylindrical, globular 3 to 5 inches high, 2 inches in diameter; tubercles dark green, cylindrical, half an inch long, very narrow, quite distinct from the majority of species; spines yellowish, hair-like, and forming a small star nearly a quarter of an inch in diameter, much resembling the pappus on some of the *Compositæ*; flowers small and white.

M. PHYMATOTHELE, *Bergm.*—A strong-growing plant, which has been in cultivation in Europe for forty years or more, and is now found in most English collections. Its name signifies "tumour-nipple," and refers to the swollen tubercles. Several species of *Mammillaria* have the specific names terminating with "thele," bearing the same signification with a qualifying prefix, as *microthele*, small nipple; *macrothele*, large nipple; and *polythele*, many nipples. In others the Latin is substituted for the Greek, and we have *longimamma* and *magnimamma* with corresponding meanings. Stem 5 to 6 inches high, 2 inches in diameter; tubercles a quarter of an inch long, conical, dark green, crowned with a small tuft of white down, a few white, spreading, hair-like spines, and four to six erect yellowish-red central spines about half an inch long. Flowers bright rose.

M. RAPIDACANTHA, *Lemaire*.—The needle-spined nipple Cactus is an exceedingly pretty species, small in its proportions, but very symmetrical, and covered with the most delicate little rosettes of spines imaginable. They are indeed needle-like in form, brightness, and rigidity, and the clusters resemble crystals of ice. A plant sometimes seen under the name of *M. raphidacea* appears to be the same as this. Stem cylindrical, 3 to 5 inches high and 1 inch in diameter, slender and elegant; tubercles short, conical, a quarter of an inch long or less, dark green; spines in one series, spreading

star-like, eight or nine, closely set, a quarter of an inch long, white tipped with brown; flowers freely produced, about an inch in diameter, and purplish violet in colour.

M. SIMPLEX, *Haworth*.—This species is chiefly interesting in an historical point of view, for it was the first one introduced to Europe. It is mentioned by several of the old writers, and among them by Bradley in his curious work on "Succulent Plants" (1716). Ray states that it was grown by Bishop Compton at Fulham, and was also grown at Hampton Court in 1690. Linnæus described it under the name *Cactus Mammillaris*, and states with truth that it is covered with bearded papillæ like the *Mesembryanthemum*, has a milky juice like the *Euphorbias*, and the fructification of the *Cactus*, remarks which would apply to many other members of the genus. With *M. simplex*, *M. discolor*, and a supposed variety of the former named *prolifera*, which is now referred to *M. flavescent D.C.*, *Haworth* founded the genus *Mammillaria*, which has since been adopted by nearly all writers, though the number of species has increased a hundredfold since his time. It is a native of tropical America. Stem simple, globular, 4 to 6 inches high; tubercles conical, small, crowned with a white down and two series of spines, the outer about twelve, white, the inner four to six, strong and reddish in colour; flowers small, greenish white.

M. STELLA-AURATA, *Martius*.—"Golden Star" is a euphonious and appropriate name for one of the most attractive of the genus, and one that is a great favourite with all who are familiar with these plants. When in good condition the whole plant is covered with star-like rosettes of yellow spines, which impart a very distinct appearance to it, especially when in contrast with the white-spined forms. It is regarded as identical with *M. tenuis* of *Decandolle*. Introduced in 1835. Stem 2 inches high, half an inch in diameter, freely branched and dwarf; tubercles short and green; spines in a flat spreading star-like rosette, very numerous, one-eighth to one-quarter of an inch long, yellowish tipped with reddish brown. Flowers small and white.

M. WILDIANA, *Otto*.—A charming species introduced from Mexico to France in 1835; but it did not make its appearance in English gardens until some years later, and even now it is not very generally known. It is one of the most select, and should be included in the smallest collections. A crested variety has been obtained and deserves the notice of those who admire these abnormal forms. Generally very dwarf, 3 to 4 inches high, but occasionally taller and more cylindrical, closely surrounded by offsets which are freely produced. Tubercles conical, dull dark green; spines in two series, the outer very fine, white, and closely spreading, the others much fewer and larger, yellowish, and hooked at the apex; flowers rose-coloured, borne at different periods of the year and rather frequently.

The species named in this list include some of the best of those cultivated in England, the descriptions (except where otherwise stated) being taken from plants in the Kew collection, which have been examined and determined by the very careful botanist, Mr. N. E. Brown, of the Kew Herbarium.—*LEWIS CASTLE*.

(To be continued.)

PEACHES AT WILTON.

I AM much interested in the experiment in Peach culture at Wilton, described by Mr. Wright at page 27. It is a great satisfaction to hear of such a shrewd sensible man as Mr. Challis stepping out of the common rut, and his experiments themselves show that they are not of the haphazard description, but based upon reflection and intelligence. I purpose availing myself of the usual freemasonry privilege of the craft and calling at Wilton the first opportunity I have, and I shall be even more pleased to see Mr. Challis here at any time he may have the opportunity of calling. There are two or three points connected with his Peach trees I should be glad to have cleared up. They are trained, I understand, on "the extension system pure and simple," as Mr. Iggulden once described them, and as I gather from Mr. Wright's account now; and so far as it goes the system is found to answer, as I have no doubt it will anywhere. But the question which arises in my mind is this: Now that the Wilton trees have already filled the narrow cross trellises allotted to them (about 7 feet wide between the path and the front wall, and a little wider above the level of the doorway, according to the scale furnished in fig. 5, page 28), how does Mr. Challis propose extending them on the extension principle on which he began, or what Mr. Wright truly calls "the generous system of culture?" His trees have already reached the end of their tether, but the limbs cannot have nearly attained to their full or natural development on a trellis which only permits of a few feet of growth each way; and after this period, unless severe and frequent root-pruning is resorted to, the old plan of hewing back the limbs must be adopted—i.e., the restrictive system "pure and simple." The experiment is only in its infancy, and it was exactly such experience as he has yet to come through with his present trees that led me to give my trees so much room. I have at the present time one young Nectarine tree, five years old, that is exactly 26 feet wide to the extremities of the branches on a level line across the base of the tree about 1 foot from the ground; and on another older tree the branches on each side are about 18 feet and 20 feet long, and these have had to be shortened back and the trees root-pruned more than once to restrain over-luxuriance. What will Mr. Challis do with all this growth in the case of his trees when he has had them as long as I have had mine? I can see nothing for it but cutting off the whole of his annual growth that extends beyond the outer edge of his trellis already covered, and depending on back breaks to keep the trees furnished, and this will be restriction in its severest form.—*J. SIMPSON, Wortley, Sheffield.*

ORCHARDS AND PARAFFIN.—In reply to "T. W." (page 44) I wish to state that the mixture of colza oil and paraffin, to which a little soot and sulphur was added, as described on page 526 last volume, proved

quite effectual, and did no harm whatever to the trees to which it was applied. Peaches, Pears, and Plums were painted over young and old wood. If it is carefully mixed and used it will not do any harm. I put in the saving clause to prevent its being roughly made and applied. It is my practice to test everything carefully before using it extensively. I have this week tested it on different plants, and even on a spray of far-advanced Peach blooms, and see nothing wrong. I will forward a little as I mix it, carriage paid, to your correspondent for him to test and report thereon in your widely read Journal if he will send me his address through the Editor.—*A FOREMAN.*

SPECIAL SOCIETIES.

YOUR correspondents "Border Flower" and "X." do not really seem to write for information. Their object is apparent to the most obtuse understanding. I cannot tell "X." how to exhibit fourth and fifth-rate flowers so that they may obtain first prizes. If any correspondents will write to me I will gladly lay any propositions for improvement before the Committee, or if they can tell me of any schedules that are more liberally arranged for all classes of exhibitors I shall be glad. Further, everybody can exhibit and take prizes, whether they subscribe or not. I again repeat that the question of national utility need not be introduced. The subscribers are, I presume, satisfied—at least I hear no complaint. The societies can lay claim to the title of "National" as much as any society of the same kind ever could. I speak in the past tense, for the National Rose Society has decided to restrict the competition for its prizes to subscribers only; it must therefore drop the title of "National."

"Border Flower" seems able to give much more important information than I can. He publicly states at page 61 that one reason why growers encourage the shows is that they want to sell their seeds. Now I publicly request of him to give the names of growers who do this. I want to know the names of the growers who have seeds to sell. Personally I do not know a single grower who has an "eye to business" of the kind mentioned by "Border Flower." If dealers in such things did have an eye to business, what is there in it to find fault with?—*J. DOUGLAS.*

MR. DOUGLAS had no right to drag in the name of my late friend Mr. Woodhead into this controversy. I had too great a respect for him to have ever accused him of taking an unfair advantage. I had not the remotest idea of alluding to him, but to an exhibitor still living. Feeling that such a statement would give pain to both his friend Mr. Rudd and his worthy sister Miss Woodhead, I wrote privately immediately on receipt of the Journal to the former, contradicting Mr. Douglas's statement.—*D., Deal.*

SYRINGING.

WATER as employed in syringing acts in two ways; first, by inducing growth, and secondly in refreshing or cleansing. In the first case it prevents evaporation, and that means growth, for when a plant is not parting with its juices it is increasing, as the roots keep on absorbing, and it is this fulness that results in growth. Thus we syringe Vines, Peaches, and other fruit trees when they are being started into growth, and we also syringe plants that have rested and which we wish to start into growth. It is held, and no doubt justifiably, that this air moisture is of greater importance than moisture at the roots, especially in the case of plants that are known to not put forth roots in advance of or simultaneously with the growth. Syringing, or a moist atmosphere, is of more consequence in effecting a good break than water at the roots, simply because the moisture prevents evaporation, causes the filling of the sap vessels beyond repletion, and the buds burst. It is living on itself on the stored-up food or cambium, which only needs moisture with the needful heat to call it into activity.

Moisture tends to expand the contracted sap vessels and increases the flow of fluid, restoring the waste consequent on the resting process, for it must not be supposed because the plants are kept dry and cool that they are entirely inactive, as evaporation is going on more or less constantly. Those that have much young wood will be affected the sooner, as the evaporation is more powerful from young than old wood. Peach trees, for instance, kept dry at the roots will cast their buds, whilst the Vine is not affected, though kept very much drier than the Peach trees. We also syringe plants and maintain a moist atmosphere after repotting to check evaporation and thus keep the plant from suffering exhaustion; therefore we may conclude that whatever promotes evaporation checks growth, but the structure of the plant is thereby solidified and rendered healthful and fruitful. When growth is wanted, the more uniformly moist the atmosphere the more regular and constant will be the growth; but if we keep a plant constantly dripping with moisture it will not be long ere it becomes unhealthy, hence our best practitioners are averse to morning syringings in the cultivation of plants, preferring to damp the house well, and thus keep the atmosphere so charged with moisture as to prevent

undue evaporation, whilst at the same time the foliage is free to perform its functions during the best part of the day. This effected, the house is closed early and syringing or damping attended to, thereby producing a close moist sun-warmed atmosphere; then as night draws on the foliage becomes dry, the temperature is lowered, and the plants gradually rest. It is not good practice to syringe so late that the foliage will not become dry before night, and it is not advised to have plants dripping with moisture in the early part of the day, especially where it is not accompanied by ventilation.

Water is not always used in the best mode or of the right kind. Rain water is undoubtedly the only proper kind to use, and it should be clear. Excepting for the coccus or scale family it is the best insecticide. Forcible syringings will eject red spider, thrips, aphides, and mealy bug, and the neglect of its use is the real cause of plants being so much infested. Too many use the syringe as if it were a toy. Plants are treated to a downpour on the upper side of the leaves, doing no good, only keeping that part free of dust, whilst the insects are left to suck out the juices of the plant on the under surface. Were such a plant laid on its side and turned round so that every part could be thoroughly syringed the insects would be removed and the soil would not be soddened with water as is too frequently the case. Clear rain water will not injure anything, it will not leave any sediment on fruit, or stain the most delicate tint of foliage; but spring waters, from the mineral substances they contain, are not generally available for syringing, and should be used with care.—G. ABBEY.

ALPINE AND ROCKERY PLANTS.

In most English gardens a rockery has become a necessary consequence of the advance of outdoor gardening, together with the introduction of a greater variety of alpine and rock plants. Many of the rockeries, too, have been built by the owners, and a few I have had the pleasure of seeing are as regards exposure and situation faultless; but it is only in the summer that the disastrous effects of planting promiscuously anything that comes first to hand is seen. The graceful outline which in all cases ought to characterise a well-built rockery is entirely obliterated, and tall-growing plants in front disfigure what would otherwise be an agreeable feature. It may also be said to be the most favourable place where experiments may be tried in the acclimatising plants that are reputedly not hardy, or at least not generally seen growing outside in gardens in this country, and a few remarks on the principal rules to be observed in choosing situations both for these and the rarer alpine may be useful.

There are many circumstances which combine to preserve different plants through severe winters—such, for instance, as a congenial soil in which a sufficient amount of strength has been gained to enable them to withstand any keen weather; a proper position or exposure, the necessary degree of moisture, and many other things not generally taken into consideration by even the most attentive cultivators, but which nevertheless assist the plants through the most critical period. It is remarkable how few growers are aware of the necessity there is of using the greatest care and precision in either the making or choosing a position suitable to a certain plant, and will often place it where they think it will look best, and where, if it lives at all, will in all likelihood only eke out a miserable existence. It is not unusual to hear of many failures attending the attempts to establish newly imported plants; and the cause I have no doubt, in many cases at least, results from an injudicious choice of position—placing shade-loving plants fully exposed to the sun, *vice versa*, or, what is even worse, a bog plant in the driest position available. The above, of course, applies only to the more specialised or critical, because, on the other hand, cultivators who have had long experience in growing rock and alpine plants know something of the extraordinary tenacity of life which some of the stronger-growing varieties possess even in positions entirely the reverse of those with which they are associated in their natural habitations; so that even where nature is not studied the hardy constitution possessed by some of these renders the work of the cultivator not altogether uphill.

In the case of alpine proper, such as Saxifragas of the longifolia section, Androsaces, Dianthus, Sempervivums, and many others, it is always safest if possible to get them established in the chink or jointure between two rocks or large stones, provided that the necessary supply of soil has been well firmed in. This position will be found the most suitable for all plants that are injured by damp around their stems and that are of a trailing disposition, and even from an ornamental point of view when well established will be found far more satisfactory than

if plants in large flat unsightly pockets; besides, it utilises large portions of the rockery that would be otherwise bare.

Where large patches of Primulas, low-growing Potentillas, Campanulas, and Geums are desired, the best plan is to select pockets near the front well exposed, and raise the back by the addition of soil at least 6 to 9 inches higher than the front, placing plenty of small angular stones on the top, thereby retaining sufficient moisture. The tall-growing plants must be arranged nearest the top, and in all cases associated with the larger stones.—M. S.

DRESSING VINES.

HOT WATER VERSUS TAR.

MR. IGGULDEN, whose writings I read interestingly and, I hope, profitably, will not, I trust, think me disrespectful in not answering his letter on page 43 sooner. He will also, perhaps, excuse me for saying that when I read his last communication on the above subject I could not help thinking that, as the phrenologists say, he appears to have the bump of veneration largely developed. There are various objects of worship—some of them curious enough, as we all know—but the latest and not the least remarkable is the worship of tar. Truly fancy plays strange pranks occasionally. It was amusing to see dirty pigments denounced for smearing Vine rods, and then in the same letter to observe tar recommended as if it were the cleanest of materials; but to “almost worship it” indicates that the subject has a serious aspect. On this I will only say that while honest convictions deserve respect I am yet far from being a convert to tarolatry.

Your correspondent is perfectly correct in assuming that I have had experience with insects in vineries. There is perhaps scarcely one kind that I have not had something to do with—from the phylloxera on the roots to scale on the stems, thrips and mealy bug on the bunches, the curculio on the young shoots, and the tortrix on the ripening fruit. He is also perfectly justified in expecting me to make known my method of extirpating one of these insects—mealy bug. It is simplicity itself, and I think, though tastes differ, decidedly cleaner than tar. Tar is an old remedy, although it is made to appear as if new. The clay-and-tar pigment has been prescribed in the “Gardeners’ Year Book” for years past as a remedy for the American blight on Apple trees. For that purpose it is good, and it would be singular if it were not more or less efficacious in destroying a similar insect on Vines. It will destroy every insect that is painted with it; and so will hot water destroy as completely every one to which it is properly applied. The question is now reduced to one of hot water *versus* tar.

I am not quite sure whether I was pleased or disappointed when I observed hot water advised in the correspondence columns of the Journal last week as a remedy for the aphid on Auricula roots. As soon as I saw it I felt I was deprived of the credit of making, what Mr. Cannell calls in his advertisement, an “announcement;” but then I reflected on the counter-vailing advantage of having the efficacy of what I call my clean remedy in some measure confirmed by anticipation. This hot-water remedy, like the “new” tar doctrine, is really no novelty, it is just a good old method of destroying insects that has fallen into disuse; but though old, I do not remember its having been prominently advocated in your columns. It is, however, a safe, good, clean and cheap remedy for all that, as may be proved by anyone who will give it a fair trial in cleansing Vines from mealy bug and Roscs from aphides.

But to the Vine-cleansing. I commenced painting Vines with dirty pigments when I was ten years of age, and for ten more years consecutively I had a large share in this work; notwithstanding, we appeared to have also a large share of the insects we were supposed every year to destroy. For five succeeding years I had the pleasure of being relieved from the “dirty work.” The Vines were never painted, but washed with hot water, and we had no mealy bug. Eventually the longed-for time arrived when I became wholly responsible for the management of a garden, and in that garden was a vinery containing seven Vines, all equally well furnished with the pest alluded to. Here was an opportunity for experiment. After the Vines were pruned four of them were well daubed with clay, sulphur, soot, and lime, mixed to the consistency of paint with ammoniacal liquor from gasworks, which is as nearly like tar as Mr. Iggulden could wish, only perhaps a trifle cleaner. The other three alternate Vines were washed with hot soapy water, and the house was cleaned in the manner recommended by Mr. Murray on page 2. As much depends on cleaning the house and everything in it as the Vines. The insects pass the winter in the fissures of the under sides of

the woodwork of stages, in the dry crocks in flower pots, in the soil of Gloxinias and such-like plants that are wintered in the house, in bits of matting that some people leave enveloping the wires, and in the dry tendrils left in the same manner. But to the Vines. Those washed were quite as free from the pest the following year as those that were painted. There was, in truth, no insects left alive on the rods in either case; but a few found their way, as they usually do, from some obscure hiding place.

Mix, say, two ounces of soft soap, Grishurst compound, or nicotine soap in a gallon of water, and apply this to the Vine rods at a temperature of 160° exactly the same as a groom would apply it to the very dirty spokes of a carriage wheel. If any insects or eggs are left it will be the fault of the workman.

If your correspondent will try his clean system and my clean system on alternate Vines he will find the truth of what I have stated, and will not have much difficulty in determining which method is the most agreeable and expeditiously applied.—
IPSWICH.

ELECTION OF CARNATIONS AND PICOTEEES.

THE ELECTORS' RETURNS.

IN performance of the promise in my last letter (page 64) I send the selections as returned to me by those who have taken part in this election, as they will undoubtedly possess considerable interest to many growers.—
—G. RUDD.

From Mr. J. DOUGLAS, Great Gearies, Ilford, Essex.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon (Easom)
Fred Odwell
Arthur Medhurst (Dodwell)
George (Dodwell)
Mars (Hextall)
Robert Lord (Dodwell)

Crimson Bizarres.

E. S. Dodwell (Hewitt)
Harrison Weir (Dodwell)
Master Fred (Hewitt)
Rifleman (Wood)
Thomas Moore (Dodwell)
J. D. Hextall (Simonite)

Pink and Purple Bizarres.

Falconbridge (May)
Sarah Payne (Ward)
Mrs. Barlow (Dodwell)
William Skirving (Gorton)
Squire Llewelyn (Dodwell)
Squire Penson (Dodwell)

Purple Flakes.

James Douglas (Simonite)
Mayor of Nottingham (Taylor)
Earl of Stamford (Addis)
Squire Meynell (Brabbin)
Squire Whitbourn (Dodwell)
Miss Nightingale (Sealey)

Scarlet Flakes.

Clipper (Fletcher)
Sportsman (Hedderley)
Henry Cannell (Dodwell)
John Bayley (Dodwell)
Annihilator (Jackson)
Thomas Tones (Dodwell)

Rose Flakes.

Jessica (Turner)
James Merryweather (Wood)
John Keet (Whitehead)
Sybil (Holmes)
Tim Bobbin (Gorton)
Rob Roy (Gorton)

PICOTEEES.

Heavy Red-edged.

Epps (Addis)
J. B. Bryant (Ingram)
John Smith (Bower)
Princess of Wales (Turner)
Brunette (Kirtland)
Mrs. Dodwell (Turner)

Light Red-edged.

Emily (Addis)
Mrs. Bower (Bower)
Thomas William (Flowdy)
Violet Douglas (Simonite)
Mrs. Gorton (Simonite)
Clara (Bower)

Heavy Purple-edged.

Mrs. Chancellor (Turner)
Mrs. Summers (Simonite)
Muriel (Hewitt)
Picco (Jackson)
Zerlina (Lord)
Norfolk Beauty (Fellowes)

Light Purple-edged.

Clara Penson (Willmer)
Her Majesty (Addis)
Nymph (Lord)
Baroness Burdett Coutts (Payne)
Ann Lord (Lord)
Jessica (Turner)

Heavy Rose and Scarlet-edged.

Constance Heron (Fellowes)
Edith Dombain (Turner)
Esther Minnie (Dodwell)
Mrs. Payne (Payne)
Royal Visit (Abercrombie)
Fanny Helen (Niven)

Light Rose-edged.

Estelle (Fellowes)
Mrs. Alcroft (Turner)
Miss Gorton (Dodwell)
Miss Wood (Wood)
Evelyn (Fellowes)
Ethel (Fellowes)

From Mr. CHARLES TURNER, Royal Nurseries, Slough.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon (Easom)
Arthur Medhurst (Dodwell)
George (Dodwell)
James McIntosh (Dodwell)
Master Stanley (Dodwell)
Robert Lord (Dodwell)

Crimson Bizarres.

E. S. Dodwell (Hewitt)
Harrison Weir (Dodwell)
John Simonite (Simonite)
Master Fred (Hewitt)
Rifleman (Wood)
Thomas Moore (Dodwell)

Pink and Purple Bizarres.

James Taylor (Gibbons)
Sarah Payne (Ward)
Squire Llewelyn (Dodwell)
Squire Penson (Dodwell)
Unexpected (Turner)
William Skirving (Gorton)

Purple Flakes.

Dr. Foster (Foster)
James Douglas (Simonite)
Juno (Baildon)
Mayor of Nottingham (Taylor)
Squire Meynell (Brabbin)
Earl of Stamford (Elliot)

Scarlet Flakes.

A. Holmes (Dodwell)
Dan Godfrey (Holmes)
Flirt (Abercrombie)
Figaro (Abercrombie)
James Cheetham (Chadwick)
John Ball (Dodwell)
Matador (Abercrombie)
Scarlet Keet (Dodwell)

Rose Flakes.

Jessica (Turner)
John Keet (Whitehead)
Mrs. Matthews (Dodwell)
Rob Roy (Gorton)
Sybil (Holmes)
Tim Bobbin (Gorton)

PICOTEEES

Heavy Red-edged.

Dr. Abercrombie (Fellowes)
Dr. Epps
Henry (Matthews)
J. B. Bryant (Ingram)
John Smith (Bower)
Picturata (Fellowes)

Heavy Purple-edged.

Baroness Burdett Coutts (Payne)
Claudia (Fellowes)
Medina (Fellowes)
Mrs. A. Chancellor (Turner)
Muriel (Hewitt)
Picco (Jackson)
Princess Dagmar (Batten)
Zerlina (Lord)

Heavy Rose and Scarlet-edged.

Constance Heron (Fellowes)
Fanny Helen (Niven)
Louisa (Addis)
Miss Horner (Lord)

Mrs. Payne (Fellowes)
Royal Visit (Abercrombie)

Light Red-edged.

Mrs. Bower (Bower)
Princess Mary (Fellowes)
Thomas William (Flowdy)
Toxophilite (Payne)
Violet Douglas (Simonite)
Emily (Addis)

Light Purple-edged.

Alice (Lord)
Clara Penson (Willmer)
Her Majesty (Addis)
Mary (Simonite)
Mrs. Tutton (Payne)
Nymph (Lord)

Light Rose and Scarlet-edged.

Empress Eugénie (Kirtland)
Estelle (Fellowes)
Evelyn (Fellowes)
Lady Carington (Abercrombie)

DELPHINIUM NUDICAULE.

A CORRESPONDENT, on page 62, asks for information about this plant, and whether it is suitable for a summer bed. It is a plant I have grown regularly for several years, on rockeries and well-drained beds of made soil, where the climate is wet and the natural soil cold clay. Perhaps my remarks may not apply to the plant when grown in a dry climate and a warm soil. It is easily raised from seed under glass. If sown early and potted singly in May, the plants are fit to plant out by the end of June. This should be done without breaking the ball, as they transplant badly and are easily checked. They must also in all stages of growth, and at all seasons, be protected from slugs, where these vermin haunt, or they are sure to be found out and eaten down. The plants will flower the first year from August to the end of autumn. I have never tried lifting them to keep during winter, but believe that they will stand unharmed through any amount of cold they can experience in England. If they fail to appear the second spring the most likely cause of failure is slugs, which, when they have once found out the plant, are sure to stick to it till it is destroyed. Plants ought to be in flower by the end of May the second year, and if not allowed to get too dry they flower for three months. After this they seem to be done for. The plant is not by nature biennial, and if dug up after the second winter the rootstock, which is large and fleshy, seems sound, but in my experience it seldom breaks again, though protected from slugs by perforated zinc and soot. In this habit it resembles such plants as Platycodon and Adenophora, which form similar rootstocks, and in strong soils are equally shortlived. I should recommend your correspondent before he uses this as a bedding-out plant to try a clump of it—say a dozen plants—and see whether it is sufficiently trustworthy in his soil. I find it capricious, and while some plants do well others under the same conditions fail. It is clear from what I have said that those who wish to keep it should raise plants from seed every year. It ripens seed fairly well, unless the summer is unusually wet.—
C. WOLLEY DOD.

SPOT ON MASDEVALLIAS.

FOR some time past I have been considering and trying to gain information as to the cause of the black spot on the foliage of these plants which gives them any but a healthy or pleasing appearance. At first I was inclined to believe it was confined to the few plants I possessed and which had been purchased, but more plants were obtained from an entirely different source, and they were even worse than those previously procured. This disease was much more general than what I had really supposed, for I soon had opportunities of inspecting plants in various collections, and all had more or less a badly spotted appearance. I made many inquiries, but none of which resulted in information altogether satisfactory, and so I tried to find out if possible the real cause, thinking that by so doing it would be the first step in the right direction towards growing the plants with clean healthy foliage.

I believe that this disease, for it is nothing else, is brought about in the first instance by improper treatment. The main cause is cold, combined with a close stagnant atmosphere. Not unfrequently these plants are subject to a much lower temperature than Odontoglossums, and these are often to be found when grown in any number, in a house with a northern aspect. Even in this position during the summer shade may be dispensed with if the house is low, but this depends upon the surroundings of the structure. The atmosphere of a house in this respect is very liable to become saturated and stagnant. This is not so liable to be the case during the summer when air can be freely admitted as is the case during the autumn, winter, and spring. I do not believe in structures with a northern aspect for cool Orchids, although they like shade—that is, the direct rays of the sun screened from them; they like light, and every ray possible should be admitted to ripen and solidify their growth. The house in which the cool Orchids are grown at Drumlanrig has, I believe, a southern aspect, and is not heavily shaded, and probably there is not a sturdier healthier lot of plants to be found in Britain.

If cold and a stagnant atmosphere are the main causes, then warmth and a freely ventilated structure in which to grow these plants will effect a remedy. Such has certainly been the case with my young plants, for the foliage produced is now healthy and stout. The plants I possess are grown with the *Odontoglossums*, not at the coolest or yet at the warmest end of the house, but in the middle, and the minimum night temperature is 45° during the winter, and this only on very cold nights or during severe frost, often when the temperature stands 55° . The little heat given to maintain this temperature appears to suit the plants exactly, for spotless leaves are produced, and the plants increase rapidly. I have given my opinion, but my experience is somewhat limited, as I do not possess more than a dozen and a half of young plants. I shall be glad to see the opinion of others, for no subject is more worthy of discussion.—W. BARDNEY.

ABOUT CUT FLOWERS.

If gardeners were asked in what month they would least desire a demand for cut flowers and flowering plants, I think the majority would name January. Not that there is a difficulty in obtaining plenty of flowers in that month, but it is not easy to keep up a supply at this season. One of the very best of flowers is the *Chrysanthemum*, which is of great value in January, though I am inclined more and more to grow only white varieties for the time of year. Of equally easy culture are Zonal *Pelargoniums*, *Carnations*, *Lily of the Valley*, crimson *Van Thol Tulips*, *Hyacinths*, *Christmas Roses*, *Tea Roses*, *Camellias*, and *Eucharises*, which may form the main stay in the shape of flowers. Besides there are always a few *Orchids*, stove and greenhouse plants, and *Primulas* which may be usefully employed.

There are some general principles which should be borne in mind and acted upon at all times with regard to cutting flowers, and especially when there is a "run" at an untimely season. For instance, it is a mistake to cut flowers until they are fully developed, and in fact will not stand much longer on the plant. Thus only spikes of *Lily of the Valley* which are fully opened to the tip should be cut, in fact these last longer than half-opened spikes; or in the case of *Pelargoniums* only trusses which are opened to the last pip. *Roses* and *Eucharises*, or flowers which will not keep on the plant, are best cut, and kept stalk in water in a cool room. Even *Chrysanthemums* will keep for several weeks in a perfectly cool and dry room, when they would be useless if left on the plant. If this principle of employing only the oldest flowers is carried out the probability of a break in the supply is very much lessened, as there will be constantly younger flowers coming forward in all stages. As a rule I never cut any but these older flowers; to cut young ones is to use up the supply of a future day, which may need all that can be grown to meet its own requirements.

Another principle which may be emphasised is this—Study simplicity in arrangement. The more simple the arrangement of flowers the easier it is for a gardener to insure a supply. I do not make it a rule, but generally I do not mix different sorts of flowers together. It is also necessary to study the kind of glasses in selecting flowers to fill them. In large glasses or vases a cluster of small flowers is out of place, though on the other hand it does not always follow that only the smaller flowers should be used to fill small glasses. If it is desired to display a *Rhododendron* truss, an *Amaryllis* or a *Cattleya* to the best advantage, select a smallish glass which the individual will fill, and do not try to improve really fine flowers of that sort by employing other foliage. Even a spray of *Maidenhair* will detract from the beauty of such flowers.

Another point. Do not mix the finer flowers with commoner sorts. Keep *Eucharis* and white *Lapagerias* to associate with *Orchids*, and with these add only the finest Ferns—*Adiantum farleyense* or *A. seutum*, or the dark green *Asparagus plumosus*. With the commoner flowers it is not by any means an advantage to use Ferns alone for a setting. For large vases, foliage of *Rex Begonias*, *Callas*, *Hollyhocks*, *Ivy Pelargoniums*, &c., are all extremely useful and suitable. Leafage is in its way just as much admired as flowers, and there is no reason why gardeners should confine themselves to a few Ferns. As a rule, let every flower stand clear of its neighbour. We may make an exception to this rule, and show a glowing bunch of *Pelargoniums* on a setting of their own foliage, but generally lightness is to be commended. Speaking of the latter reminds me that it is bad taste to mix dark-coloured varieties and those of a rosy shade together. Keep the latter to mix with light forms like *Aida* or other flowers. These help to show off the beauty of each other, but if mixed with the crimson kinds the effect of both is spoiled.

Much that has been written about vase-furnishing applies with equal force to table decorations. There are three simple modes of decoration which may either be separately employed or conjointly. For small tables cut flowers are most suitable, and these may be either arranged in small glasses or laid on the cloth. Tables to dine say from eight to a dozen and upwards are generally decorated with

plants as well as flowers. The simplest way of using plants is to stand them in vessels of plate or some kind of earthenware, or to stand them on the table amid a bank of foliage and flowers. In the latter case the fewer flowers employed the better. Nothing surpasses the common *Selaginella Kraussiana* as a groundwork, and if it is healthy and well grown no Ferns will be required. As a rule half a dozen large blossoms round this will be sufficient. White, pink, or crimson flowers are most suitable. *Chrysanthemums*, *Eucharises*, *Pelargoniums*, and *Camellias* are very suitable for the purpose, but they must be good. Small plants are sometimes placed round the table, crimson *Tulips* or three sprays of *Lily of the Valley*, or three plants of *Rivinia humilis* are well adapted for this purpose. These require no flowers amongst the moss. If foliage plants are used, then three *Carnations* round each, or as many *Bouvardias* or double *Primulas* do well. I much prefer to have all the plants alike. Small glasses filled with flowers are very pretty. Flat glasses should be filled with single trusses of *Pelargoniums* backed with a leaf of the same, or a *Chrysanthemum*, *Camellia*, or *Eucharis*. Tall narrow glasses are suitably filled with *Lily of the Valley*, small *Pelargonium* trusses, *Bouvardias*, and *Dendrobiums*.

In placing flowers on the cloth it is necessary to avoid light-coloured flowers unless some dark material is placed for the flowers to rest on. But this I do not like, it is artificial. Nothing is so homely as a white linen cloth, and it is easy enough to select colours to show on that. The main point to bear in mind in this form of decoration is to employ good flowers, and, as a rule, large ones are to be preferred. As far as possible use the foliage belonging to the plant, and when using Ferns select the *Adiantums*, such as *A. tenerum* or *A. farleyense* in preference to the common *Maidenhair*, which is too small in the pinnæ to show well. As with the plants, I like to employ only one, or at most two kinds of flower. These are laid on the cloth just before dinner time, and removed immediately dinner is over, so that the flowers receive no damage.

We have some pretty earthenware pots or small vases for decorating the breakfast table. These hold a small Fern out of a thumb pot, or a single *Tulip*, or two or three sprays of *Lily of the Valley*, and look very pretty and refreshing. I find the latter and *Tulips* do very well without any soil, merely keeping the roots in water, which is hidden by a tuft of *Selaginella*.—R. P. BROTHERSTON.

PEACH TREES CASTING THEIR BUDS.

LAST season our Peach trees in the earliest house cast the principal part of their flower buds, and we attributed it to dressing them with Gishurst compound, although the solution was not so strong as advised on the cover of the box. A Nectarine tree in the same house was dressed with the same solution with a different result—few of its buds fell. Neither of the trees lost any of their wood buds. The trees were all badly infested with brown scale, and received two dressings with the solution. It had the desired effect with the scale, so that there was scarcely a trace of it this season. After pruning the trees this season they received a washing with equal quantities of tobacco juice and water, and have cast very few buds. Spring water is used both for syringing and watering the border. It is warmed to the required temperature.—L. T.

I do not think that giving the trees spring water is the cause of "Alpha's" trees casting their buds, as my trees have done precisely the same as his, and mine have been watered only with rain water. We must look for something else; but what I am not clever enough to make out, but perhaps some of your readers can.—A. S. D.

LILIUMS FOR MIXED FLOWER BORDERS.

IN a note on this subject on page 37 Mr. Sanders speaks of me as having discovered the secret of the successful open-air cultivation of *Lilium auratum*. Though I cannot claim to have done this, I have cultivated so many different *Liliums* for several years in the open air that a few notes for the sake of comparison may be of use to some readers. As for *Lilium auratum*, we have had elaborate theories propounded in different gardening journals to explain the reason why imported bulbs generally flower once tolerably well and then die. No doubt in *Liliums* as in nearly all bulbs, the new bulb which forms whilst one year's growth and flowering are going on, gathers a store in preparation for the same process the next year; but the great constitutional disturbance caused by what the imported bulb has had to undergo, though it does not destroy the flowering power already collected under the suns of Japan, causes the bulb to exhaust itself in the effort without making another bulb. If these imported bulbs are examined as soon as their flowering is over it will generally be found that no roots have been made beneath the bulb, but only from the crown of it, and that the bulb is dwindled and unhealthy and incapable of flowering or even growing the next year. A few out of every hundred do better, and the more

favourable to healthy growth the conditions have been to them during their first year in their new home the larger the proportion that will succeed. No one should consider that he has failed with *L. auratum* unless he has tried sound healthy bulbs raised in England from English seed, or at least bulbs which have been grown in England after three or four years' naturalisation. I cannot think that borders in which *L. lancifolium* (*speciosum*), *L. Thunbergianum*, and *L. tigrinum*—all of them more difficult to please in the matter of soil than *L. auratum* is—will not grow this latter kind well. The only suggestion I can make is that the soil may be too sandy, as *L. auratum* requires more moisture to do well than the others mentioned.

I observe that *L. bulbiferum* is included in Mr. Sanders' list. I have never yet succeeded in getting a bulb of the true *L. bulbiferum*, a Lily bearing little bulbils in the axils of the leaves all up the stalks. I think the Lilies generally called *bulbiferum* are either *L. croceum* or some hybrid of it; but by whatever name they are called, some of these hybrids are amongst the handsomest ornaments of our mixed borders in the month of July, being admirably suited to the English climate. In some catalogues they are called hybrids of *L. davuricum*, in others *L. umbellatum*; but there are many differences of height, habit, and colour, and nearly all are good.

Two or three Lilies which do very well in my mixed beds thrive in a soil too stiff and retentive to grow either *L. elegans* (*Thunbergianum*) or *L. tigrinum*, but they do not refuse to thrive in a lighter soil. They are *L. Szovitzianum* (*colchicum*) and the varieties of the common *L. Martagon*, white, purple, and very dark. The first-mentioned, known also as *L. monadelphum*, is a very handsome border flower, growing when established 5 feet high or more, and making heads of from six to twelve citron-yellow large spotted flowers about the end of June. *L. testaceum* (*excelsum*) does well in the same soil, but is less handsome.

Then there are two scarlet Martagons, *L. chalcedonicum* and *L. pomponium*, both very striking Lilies, and doing well in soil neither too dry nor too retentive. Care should be taken by arrangement with dealers to get these Lilies directly they are out of the soil, and favour should be made with the sellers not to cut off the roots. The state in which Lily bulbs generally come into the market makes it wonderful that they ever live at all, not that they take at least two years to recover themselves. I have said nothing about *L. pardalinum*, which, with the damp subsoil it has in my garden, I have never found to fail in any part. It is not one of the handsomest of Lilies, but ought soon to be one of the cheapest. *L. Washingtonianum* rarely does well in the open border in England, and *L. superbum* must have a damp soil. I think the latter at best an over-rated Lily, as it is always deficient in brightness of colour. *L. canadense rubrum* is a real gem amongst Lilies, and will do wherever *L. longifolium* does well. Next to it in merit in the same species comes *L. canadense flavum*. The mixed colours of the species are neat and elegant; still all the *L. canadense* are somewhat capricious about soils. *L. Humboldti* is a fine Lily, but cannot be trusted to do well, and being still expensive should be tried sparingly.

L. giganteum is more to be depended on in sheltered borders, and the many hundreds of thousands of home-grown seedlings which must now be approaching flowering size ought soon to bring this Lily within the reach of every garden.

I think I have now mentioned most of the leading Lilies suited for outdoor cultivation in England. Of all the established Lilies I have tried I have found *L. candidum* and *L. tigrinum* in all its forms the least accommodating and the most difficult to please.—C. WOLLEY DOD.

EUCHARIS AMAZONICA.

THIS beautiful stove plant is without doubt the finest of the *Amaryllis* tribe. The treatment under which I have grown it and been fairly successful is as follows:—

When an old pot has become too full of bulbs I shake them out, and divide them carefully with as little injury to the roots as possible; after division they are washed free from all decayed roots and old soil. The bulbs are then sorted into sizes, placing the largest, eight or ten in number, in a pot 10 inches across, then following with about sixteen of the next size, the smaller being placed in pans to be grown to flowering size.

The compost used in potting consists of one-half loam, one-fourth horse droppings from an old Mushroom bed well reduced, and one-fourth sand, with a good dash of charcoal dust and bone dust all being thoroughly incorporated. The pots are well drained with a little rough turf on the crocks. After potting the plants are shaded until fairly established, they are then brought into more light; at the same time always avoid bright sunshine, as the foliage is very easily injured by a sudden glare of light. Discretion is used in watering at all times, parti-

cularly so after the plants are newly potted; for if the soil becomes sodden the roots very soon go off, and it then requires great care to start the plants. After once fairly starting weak liquid manure is given about twice a week, a handful of soot is also occasionally supplied.

By having bulbs of different sizes constantly growing a succession of flowers is at command all through the year. If a little bottom heat is at command so much the better, but by careful and judicious treatment after potting equally good results can be obtained without it. The plants are grown at all times in a stove, the temperature of which is rarely more than 80°, or less than 60°.

Another mode of culture where bottom heat is at command, and which answers exceedingly well, is to plant the bulbs out in a bed, using the same kind of soil for them as for potting. When once well established they do not need disturbing for years. Of the two ways of growing them I prefer the latter, as flowers of a finer quality and in greater numbers from a less amount of space are obtained.

Eucharis amazonica is subject to one or two pests, the worst of which is mealy bug, sponging with soft soap and warm water being one of the simplest and best remedies. There is a smaller-flowering *Eucharis*—i.e., *E. candida*, which grows equally well and flowers quite as freely. The flowers for cutting have very few equals, and the plant deserves all the care and attention that can be bestowed upon it, and for market purposes it cannot be excelled.—WILLIAM JACKSON, *Benton Park, Randon.*

[The third prize paper read at the Leeds Gardeners' Meeting.]

HOLLYHOCKS.

WHAT is there in the floral world that can take the place of these noble flowers? In my opinion there is nothing so striking and unique in appearance as they are. I am not an old man, but I remember at least twenty years since what a grand lot of them with a great variety of colour and very large double flowers my grandmother had in the old country garden where I first learnt to love hardy flowers. Some of the stools were many years old, but the stock was constantly renewed from seed selected with a discriminating eye. There were large clumps, between similar ones of *Delphiniums* and *Monkshoods*, and they towered up 7 and 8 feet high. Last January I visited the dear old spot and found Hollyhocks still a favourite flower, and from what I could gather they had, or did not suffer, from the disease which has caused so much vexation to many. Of course it was difficult to ascertain the exact truth respecting such an invader from those wholly unacquainted with the nature of such parasites, but certainly what growth could be seen evidently bore no traces whatever of the fungus, and I intend to have leaves sent me at different times during the ensuing season, so as to feel quite satisfied that the plants in that part of the country are not infected; for I have no doubt there are many quiet country gardens where the Hollyhock has been grown for decades in which the *Puccinia* is unknown. I always keep my plants in two or three places, so as to avoid, if possible, all of them becoming attacked. In one batch three weeks since I noticed it making progress, but could not detect the least sign of it on the others. The infested plants were taken in hand at once, all the leaves were removed, and about an inch of the soil scraped out of the pots, and the whole pot plunged in a strong solution of soft soap, with about double the quantity of Fir tree oil prescribed for a given quantity of water; the dipping was repeated for four days, and although the solution was strong enough to injure the plants to some extent, yet they are growing freely again, and I do not observe any of the disease and hope it is destroyed, but am not at all sanguine on this point. Last year I had two batches of plants from different growers, one in Scotland, the other in Newcastle, and both senders represented the plants as quite clean and perfectly free from the fungus; but upon unpacking them I noticed the well-known spot, and although I dealt severely with them, I could not stamp it out, so had to destroy them.

I think it much better to grow a fresh batch from seed every year, securing the seed from a reliable source to start with, and afterwards saving over from the best flowers, for as a rule they seed pretty freely. If seed is sown thinly in pans at once and placed in gentle heat—say the greenhouse—there will be ample time to get flowers from them in the autumn; at least, many, if not the greater portion of them will flower, and the rest next spring, but no time should be lost now, and it is important to sow them thinly, so that they will not require disturbing before being planted out, which they may be after being hardened off in a cold frame. Encourage them to grow as freely as possible, and have the ground deeply dug or trenched in which they are to be planted and heavily manured, for they are great feeders. A large space of ground need not be occupied with them the first year, as they may be planted thickly until they have flowered, when it can be judged whether they are worth keeping or not, after which they can be planted as isolated specimens or otherwise, and enjoy more scope for their development. Delphi-

nium seed sown now and treated in the same way will produce flowering plants by the autumn.

Those who possess named varieties of Hollyhocks should place the stools now in a little peat, or if they are in the ground cover them with a handlight. If placed in heat, of course they will come on quicker, and consequently produce better plants the first season. When the cuttings are fully active, take them off with a heel, if intended for striking, and insert them in small pots of light sandy soil and place in the propagating pit, when they should be carefully watered—not kept too wet—and in about a fortnight they will root. They can also be grafted upon pieces of roots, selecting those about the same thickness as the shoots. This plan is generally adopted where they are largely grown. Ordinary side grafting is the simplest and best way to manage them, and when done place them in small pots of sandy soil and plunge in heat, and in due course, other things being equal, they will unite and form good plants; and like Roses, if planted below the union, will quickly be upon their own roots. I usually select seedlings for grafting, as they are more vigorous than portions of roots taken from other plants, and if they are grown in small pots for the purpose, the ball can be turned out, sufficient soil removed to put the scion on, and the whole returned again to the pot and then placed in heat. This is a very simple and generally successful way of increasing them. Supposing they are not now propagated at all, there will still be a good chance to increase the stock in July by eyes selected from the lateral shoots, which are generally freely produced. Examine the buds in the axils of the leaves, and many of them will be found to be leaf buds. These should be cut up similar to Vine eyes, leaving about an inch of stem each side of the eye, and pot them separately in small pots, leaving the bud slightly above the soil, and plunge in a brisk bottom heat, either in a hotbed or in the propagating bed inside, and in due course the bud will expand and roots will be emitted from the under surface, and before winter sets in really good plants may be had by this means. All the buds will not grow, but with care a good percentage of them will turn out most satisfactorily. I struck a good batch during the last two seasons, and a few days since I repotted those which were worked last July upon their showing signs of activity. They were in 3-inch pots, and are now shifted into 5-inch size and placed in a cold frame, there to remain till the end of March or early in April, according to the weather, when they will be planted out in well-prepared ground, which to insure success is a very important item; indeed it is absolutely necessary, especially if the soil is stiff, to thoroughly work it, if they are to make the best of the season.—T.

REVIEW OF BOOK.

The English Flower Garden. By W. ROBINSON. London: John Murray, Albemarle Street.

FLOWER gardening has made considerable advances within the past quarter of a century; a greater diversity of styles has come into favour, and there has been a gradual awakening to the fact that it was a mistake to rely exclusively upon the so-called standard bedding plants, such as Pelargoniums, Calceolarias, and Lobelias. The brilliant effect produced by tastefully arranged beds of these is admirably adapted for some positions when employed in moderation, but advocates of this style of bedding have done their cause injury by excess of zeal, and there is no doubt but that this has in a great measure contributed to a steady revolution in taste. A decided step towards relieving the sameness produced by a repetition of brightly coloured flowering plants was the introduction of the carpet style of bedding, in which the plants, consisting of those distinguished by different coloured foliage, possessed softer and quieter tints, and produced in combination more pleasing harmonies of colour than could be expected from the others. Though this has been as unmercifully ridiculed as the Pelargonium style, its merits are well established and its popularity unquestionable. A third style is that in which hardy plants are chiefly employed, and this also has been much advanced and developed in recent years. It is a pleasing revival of an old taste, for the border of hardy plants and florists' flowers formed the chief feature in gardens long before the more tender exotic plants were largely employed in outdoor garden decoration. In few establishments, however, were any elaborate attempts made in the arrangement, and it is in this respect principally that the advance is noticeable. Spring bedding is only a form of this, and the beautiful effects produced by tasteful displays in this method are now familiar to the public, and its value is fully recognised. Yet taking the borders or beds of hardy plants alone, it is surprising how great an amount of pleasure they will yield during a great portion of the year when stocked with a judicious selection of the most attractive species and varieties. That the popular knowledge of such plants is limited to a small proportion of the total number known and procurable is undeniable; it is equally clear that an extension of such knowledge is very desirable and likely to add much to the beauty and interest of gardens generally. The object of the work now before us is to assist in this object, and both in design and execution it is admirably adapted for purpose, as it is a reliable compendium of the best information

obtainable upon the subject, and to which many of the most experienced lovers of hardy flowers have contributed.

The subject is treated in two parts. The first, to which 124 pages are devoted, deals with the style, position, arrangement, and the practical matters connected with the formation of flower gardens. It is accompanied by a number of excellent engravings of garden scenery to illustrate the principal effects obtainable by appropriate planting in the neighbourhood of mansions, a few designs of carpet beds, and figures of subtropical plants. The second part, which forms the bulk of the book, containing over 300 pages, is devoted to the description and culture of the flowers suitable for culture in the open air. This, like the preceding, is thoroughly well done, being the work of a number of specialists whose services the editor freely acknowledges, specially mentioning those of Mr. W. Goldring. The genera are arranged alphabetically, treated very fully, and profusely illustrated. Taking the Campanulas for instance, no less than thirty-three species are represented; and other large genera, such as Clematis, Lilium, Narcissus, and Primula, are similarly well described and figured.

As regards type, paper, binding, and general finish this work is all that could be desired, and altogether it is the best on the subject that has yet been produced.



KITCHEN GARDEN.

The Weather.—Plenty of rain and a generally unusual mildness have been the leading features in the winter so far, and nothing could be more favourable to the growth and preservation of vegetables, as well as for tilling the soil. Market gardeners would probably be glad to see many vegetables scarcer, but buyers will not be of this opinion; and many private growers will have much to be thankful for, as in many cases winter supplies tax their resources to the utmost, and a severe November or December give much extra work in forcing to keep up supplies in spring. This should not be the case this spring, as Broccoli are turning in profusely. Spinach is large and succulent in the leaf, and other things remain fully developed. Should frost occur, however, as it no doubt will, the condition of matters will soon change, and cultivators should do their utmost to be prepared for this. Forcing has been simple work so far, and ground work, such as digging and trenching, should not now be behind in any case. A mild January often tempts beginners to sow freely, and by the end of March the mistake is too often apparent, but it will be well if those who are guided by the weather will confine their operations to thoroughly prepared soil, sheltered corners, and limited sowings.

Winter and Spring Cabbages.—These are healthy and green, and a general earthing-up should now be given. Where the soil is mellow this may be easily done with a drag hoe, but where retentive a fork should be used. The soil should be drawn well up to the collars of the plants, as this will give them needful support when the heads are heavy. It also prevents the wind shaking them, and in case of frost would afford them much protection. The small plants which are left in the autumn-sown beds are now large and ready for going out, and a piece may be planted with them at any time. The soil for their reception must be well manured. A little seed of an approved early variety should be sown in some warm corner, and this will give a very good succession to the others.

Onions.—Manure ground heavily for the reception of those plants raised from seed sown in the autumn. Sow seed of one of the early quick-growing sorts to give a supply of young plants for drawing when the autumn Onions are too large and before the spring plants are fairly in.

Round Spinach.—A few rows of this may be sown. A light dry soil suits it best at this season, and as it will not be very long on the ground special preparations need not be made for it. We generally sow our first crops of this between the rows of Peas put in during autumn, which are not staked, and we have many good early pickings from plants grown between the Strawberry rows on a south border.

Hotbeds.—These should be made up in succession for the reception of early Potatoes, Carrots, &c., and where materials of the kind are plentiful, many young Cauliflower plants, Lettuces, and Radishes may now be sown in frames, or between the rows of Potatoes where the latter are planted wide enough apart.

Globe Artichokes.—These are greener than we ever saw them at this time, and if severe weather comes the consequence may be serious, as they will not bear much frost. No attempt must be made yet to clear the litter from around them, as this will benefit them until the end of March.

Mint.—Where this is wanted green with early lamb a quantity of roots should be taken up and placed in pots or boxes, then plunged in a gentle heat.

Broccoli.—Many of these are hearting now. Backhouse's is our best, then comes Osborn's and Snow's. Where more heads are ready than is wanted cut and store them in a cool place. All the leaves should be trimmed off, and the short piece of stem attached to each head should be

pushed into damp sand or leaf soil; in this way they may be preserved for a month at least.

Frame Potatoes.—In notes respecting these (page 52) Sharpe's "Victoria" should read "Victor."

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—Attention must still be given daily to the late-blooming varieties, passing the camel's-hair brush lightly over the flowers on fine days. This operation takes up some little time, but it is one for which we are amply repaid in the feeling that no detail has been neglected which was likely to lead to success. When all the fruit is well set, syringe the trees daily in fine weather with tepid soft water, which will soon remove the remains of the blossoms and be a means of keeping insects in check. If, however, the young growths should be infested with aphides, fumigate upon a calm evening moderately, as the tender foliage is very susceptible of injury by tobacco smoke, especially if it be in the least wet, therefore have the foliage dry and fumigate moderately on two or three consecutive evenings. Disbudding must be proceeded with cautiously, so as to avoid giving a check to the roots. Commence at the extreme tier of the trees and work towards the base, removing the foreright shoots only in the first instance. Where there is a thick set of fruits, a few of those on the under side or at the back of the trellis may be removed, as the crop must be selected from those fruits which occupy the upper sides of the shoots; and in thinning the smallest and least promising only must be removed, as the thinning of the fruit needs to be done very gradually, especially at this early season. The night temperature should be kept at 55°, and on mild nights 3° to 5° warmer, with an advance by day of 10° to 15° from sun heat. Be careful in admitting air, guarding against exposing the young growths to cutting draughts in clear frosty weather. A few degrees' excess of sun heat will not do any harm, and is better than admitting cold air to keep the temperature down. Examine inside borders, and give the roots a good watering with weak liquid manure, which must be given in a tepid state. Avoid manure in a gross condition for mulching, it only encourages gross growth, and is positively injurious.

Second House.—The trees started at the commencement of the year are in full bloom and promise well. Where the trees can be depended on as good setters and the bloom is abundant draw the finger down the under sides of the shoots, thereby removing all the pendent blooms, which ought to be done before the flowers expand. Artificial impregnation must be resorted to, or a hive of bees will do it much better. If any of the large-flowering varieties, as Grosse Mignonne and Noblesse, are deficient of pollen, collect that of the smaller-flowered sorts, as Royal George, and apply it to the stigmas of those deficient of pollen. Syringing will have ceased, as it ought during the flowering season, but maintain a genial condition of the atmosphere by sprinkling the paths in the morning and afternoon of fine days. If there be any deficiency of moisture in the borders give a thorough soaking with tepid water. Maintain the night temperature at 50°, falling a few degrees on cold nights, 55° by day by artificial means, and 60° to 65° from sun heat, ventilating on all favourable occasions.

Houses to Ripen Fruit in July.—Where there are several houses and it is desirable to have a succession of fruit, a third house may now be started; indeed they have started, the buds being on the move and swelling fast, unquestionably due to the unusual mildness of the season. The ordinary midseason varieties now started will ripen in July. The house, no doubt, has been cleansed, the trees pruned, dressed, and secured to the trellis. Give the inside border a thorough watering, employing weak liquid manure in a tepid state if the trees are aged, but young trees will hardly need any stimulant. If there be any dryness at the roots it will be necessary to bring the soil into a thoroughly moist condition by repeated waterings. Syringe the trees twice a day, morning and afternoon, the latter sufficiently early to allow the trees to become dry before night. Turn on the heat in the morning to raise and maintain a temperature of 50° through the day, ventilating freely above that degree, and maintain a night temperature of 40° to 45°.

Cherry House.—Cherry houses are not so frequently seen as they should be. The house must be light, well ventilated, and have moveable roof lights. A lean-to answers well, having a trellis about 15 inches from the glass, and the trees planted in front, or a half-moon trellis in front will admit of trees being trained on the back wall. The borders should be entirely inside, and should be about 6 feet wide. Wide borders are quite unnecessary, in fact they are injurious. The borders must be well drained, a 3-inch drain pipe being taken up each border, and over this a foot to 15 inches of rubble for drainage, and to keep this porous a layer of turf grass side downwards, and then 30 inches depth of soil—good fibrous loam, with a tenth of old mortar rubbish incorporated. Grit is also essential; if deficient of this, add road scrapings equal to a sixth of the whole, thoroughly mixing and putting together firmly. The best sorts for forcing are Circassian and May Duke of the dark-coloured, and of lights Elton and Governor Wood. If trees can be procured that have been trained to walls for four or five years, they should be selected as they come into bearing at once. Now is a good time to plant the trees, indeed February is the best month for introducing fresh trees into houses at work as well as for planting new ones.

PLANT HOUSES.

Nepenthes.—These are amongst the most ornamental and interesting plants that can be grown in the stove. They will do well grown either in pots on the stages or in baskets suspended from the roof; the latter is

preferable, because the side stages can be occupied with other plants, and when hanging from the roof they show themselves to the greatest advantage and possess a very pleasing appearance. Plants requiring baskets of a larger size should have them without delay; place at the base of the baskets a layer of large crocks, which should be covered with sphagnum moss, and then the remaining portions between the ball and the sides of the baskets filled with peat fibre and sphagnum moss in equal proportions, to which may be added a few small crocks or charcoal. Remove as much of the decomposed material as possible, but care must be exercised not to injure the roots, for they are easily broken. If the plants have been cut down and the lower portion of the stem is bare, peg it upon the surface of the soil and cover it with moss, and in a short time it will emit roots freely, especially if half cut through where the growths start away; by this means the plant will in a few months be independent of its former roots. These plants should not be allowed to grow tall, and thus become shy of producing pitchers; on the contrary, as soon as they fail to form them freely cut them down close to the base, leaving two or three eyes, which are ample. If cut down at once the plants will soon commence growth, and before autumn will have made good plants, producing pitchers freely.

Propagation.—After cutting a plant down the stock is readily increased by cuttings made from the stem. The stem should be cut into lengths possessing two joints each. In making the cuttings the cut near the lower joint should be clean, but neither of the leaves should be removed. These should be inserted in 3-inch pots filled with sphagnum moss and a little coarse sand, the top eye only being left out of the moss, while the leaves should be supported with small stakes. After this a good watering of tepid water must be given, and the pots plunged in brisk bottom heat under handlights, bellglasses, or a close frame, where they should remain without being disturbed until they are rooted. If shaded from strong sun and the foliage dewed with the syringe occasionally, nearly every one will be found to root and produce a young shoot from the top eye. After they are rooted some care and attention must be devoted to hardening them, for they are a long time before they are sufficiently hardened for placing in baskets and suspending. After the young plants are sufficiently hardened to be placed in baskets the old foliage may be removed and the plants mossed up to the place where the young shoot starts away. By autumn fine plants will be produced, which will commence to form pitchers freely.

Alocasias.—The foliage of these plants is very ornamental in the stove, and wherever such are appreciated they should be grown. They may without further delay receive their annual potting. Turn out the plants and remove from them the whole of the old decomposed compost, as they dislike soil in a sour or saturated condition about their roots. If the stems of these plants have become long remove the lower portion, which will allow them to be dropped lower in their pots, and impart fresh vigour to the plants afterwards. The pots for these plants should be half-filled with drainage, and the plants when potting is finished well elevated above the rim of their pots, similar to Orchids. The compost should consist of equal parts fibry peat and sphagnum moss, with lumps of charcoal freely intermixed. The top may be surfaced with a layer of sphagnum moss, but ample room should be left for a good top-dressing during the summer when the plants are in active growth. A little cow manure in a dried state applied to the surface I have found very beneficial to them. If practicable after potting, give the plants bottom heat until their roots commence working, when they can again be removed to their position in the stove. The portions of stem may be cut into lengths if it is desirable to increase the stock. If about 1 inch long and placed in light sandy soil in pans, every portion will produce a plant which can be grown on together or singly, as thought most desirable.

Anthuriums.—All fine-foliage varieties of these that occupy the stove may also be subject to the operation of potting. The whole of the old compost should be removed with as little injury to the roots as possible. Give a good quantity of drainage, for these plants delight in rooting near the surface, and when in active growth require abundance of water. The lower portion of the stem generally rises in the space of twelve months well above the surface of the compost, and roots are freely produced. In potting place them as low as practicable, and as they grow a surface dressing may be given them with advantage. Elevate above the rim of the pots the same as the Alocasias, and use the same compost.

The useful and beautiful *A. Schertzerianum* that has been up to the present time in a temperature of 55° may now be brought into the stove, and in a very short time they will produce their bright scarlet spathes. These may also be potted as soon as they show signs of root-action, which will not be long after they are removed into the heat and moisture of the stove. The old compost should also be removed from these; in fact, when potting is needed carry out the directions given for the fine-foliage varieties, and use the same compost.

THE BEE-KEEPER.

NOTES ON BEES—PRACTICAL MANAGEMENT.

Preventing Swarming—Utilising Swarms, &c.—It is very important to the bee-keeper to know what he can do to prevent his bees from swarming at a time when he does not wish

to increase the number of his stocks, but rather to obtain as large an amount of surplus honey as possible. To attain this desirable end many praiseworthy efforts have been made, and eminent apiarians have devoted much time and attention to it. The result, so far as my own experience goes, is that though much can be done to lessen the chances of swarming, no plan which has yet been made public can be relied upon in all seasons and under all the various conditions in which we find our bees at the time.

Atmospheric influences have much to do with it, and it not unfrequently happens that the excitement caused by giving additional supers or removing sections will start a swarm off. To talk about overhauling hives at regular intervals and removing queen cells so as to prevent swarming, is altogether out of the question; no experienced bee-keeper would entertain the idea for a moment, on account of the trouble and worry involved. Confining queens to a particular part of the hive sounds well in theory, but in practice it does not as a rule succeed; so that after all, if we give timely room, plenty of ventilation, shade, and keep our hives as cool as possible when swarming is likely to take place, the chances are ten to one in

from their usual place, and the folding wood quilt only is shown.

If the weather is hot at the time and the season not too far advanced, give a second crate of sections over the frames of foundation (with excluder zinc between to keep the queen down in the body of the hive). By this plan we give the returned swarm plenty of congenial work in comb-building, and the second stock, which receives the combs of brood, has the well-known advantage of "doubling" given to it, so that after the brood has hatched out honey can be regularly slung from the combs without interfering with the sections at work on the same hive.

Spacing Frames.—We have been asked for our opinion on distance pins and broad shoulders for frames, as a prominent bee-keeper has lately been giving his views on what he believes to be the best hive, and says, no doubt with perfect sincerity—"I use no distance pins, broad or under shoulders, as guides, as I can manipulate much quicker without them." We cannot understand by what method bees can possibly be manipulated in bar frames much quicker, when the regulating of the distance between each frame has to be attended to every time it is replaced, than if the form of the top bar was such that the frames regulated themselves. To make the matter clear—on opening a hive the first thing required is a little lateral space, so that combs covered thickly with bees may be lifted up freely without crushing. In our hive there is an inch play at the end, so we draw the divider back to the side of the hive without raising it, and we have the lateral space at once. If we wish to inspect a centre comb the intervening ones are drawn back close to the divider, not singly, but all at once, and they are replaced in the same way. In going over combs, each one after inspection is set in the hive again close to the divider nearest the operator, and when all have been examined one movement pushes frames and divider into their original position. If this is not much quicker than replacing frames one by one and regulating the distances between each as we go on, we are at a loss to know how the apiarian works. With broad-shouldered frames working on metal runners propolisation is never an inconvenience; with narrow top bars working in a rabbit it is an intolerable nuisance, as the bees have access to the whole of the space on which the frames should slide, and propolise it to such an extent that it sometimes runs down the very walls of the hive inside. This was one of our great objections to the use of the original Carr-Stewarton hive, which is made exactly on the same principle.

Conclusion.—The "Art of Bee-keeping" has been recently so fully treated of in the columns of the *Journal of Horticulture* by Mr. Raitt, that it would be a useless repetition for us to go over ground so well covered by the articles alluded to. In these "Notes" we have briefly referred to details in which the peculiar construction of our hive gives what we consider special advantages, so that in concluding our observations we may be allowed to summarise what has, we fear, been a somewhat disjointed statement of our experiences in designing what we consider to be the best hive for all purposes.

We have not taken into account the wants of a bee farm, and we have utterly ignored the interests of the British bee farmer (a mythical personage, often heard of but never seen). It is offered to British bee-keepers, who constitute the bulk of our apiarians, and whose stock seldom consists of more than half a dozen hives. These should be of good make, not worthless makeshift ones. They should give to the ordinary amateur bee-keeper the readiest way of making the most of our short honey season. The brood nest should be capable of enlargement or contraction with a minimum amount of trouble, and the brood combs should be accessible without disturbing supers. Spare frames should have a place to keep them in during winter, and doubling be possible without requiring an extra hive for the purpose. To the advanced bee-keeper the hive should be easily adapted for queen-rearing and nucleus requirements, and we confidently assert that the time and labour expended on a hive of our pattern will be well repaid in the possession of a thoroughly good bee habitation, which will answer every contingency that may arise; while for facility in hiving swarms, building up stocks in spring, supering, doubling, &c., and for warmth in winter and ventilation in summer it is all that can be desired.—W. B. C., *Higher Bebington, Cheshire.*

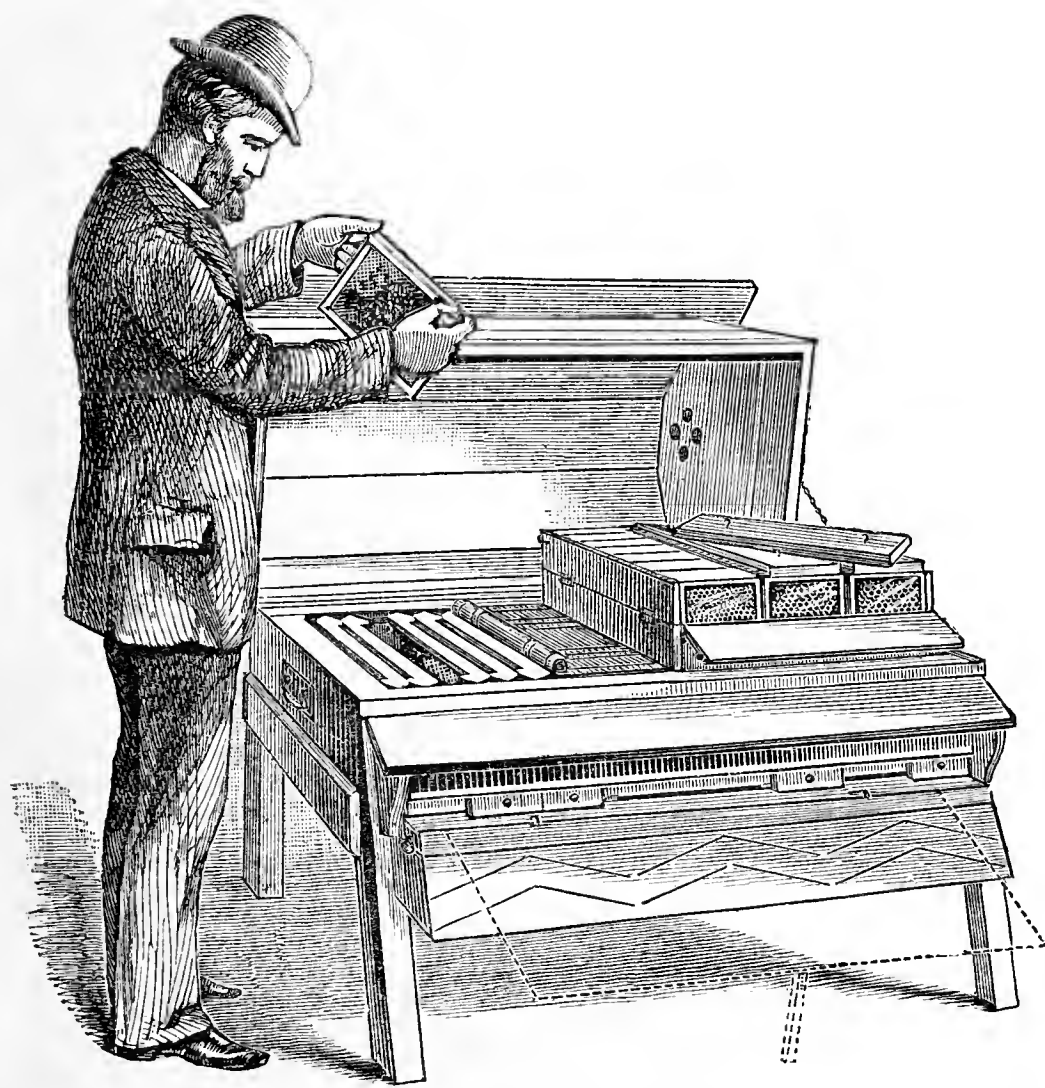


Fig. 15.—The Broughton-Carr Hive.

favour of success; and if (as in some seasons when a perfect swarming mania seems to take possession of the bees) if, as we say, swarms persist in issuing from hives with half-filled supers, they should be accepted and made the most of.

With the hive specially treated of in these papers, the following method of dealing with a swarm when increase of stocks is not desired will give a very satisfactory result. Hive the swarm in a skep as usual and place it close to the hive from which it issued. Remove nine frames of brood from the swarmed hive into a spare frame box, and after cutting out all queen cells and drone brood, give them to a second stock (which may be supposed to be already supered with a crate of sections) give frames of foundation in exchange for the brood combs taken away, and cover with the wood quilt only. Cut out all queen cells from the remaining nine combs, and while the sections are off, to enable the operator to do this, overhaul them and remove all that are completed, substituting empty ones instead. In the evening return the swarm to the parent hive by knocking out the bees on to the flight board as described on page 458 last volume. To make the illustration (fig. 15) as instructive and plain as possible to amateurs, the thick hair quilts are omitted

TRADE CATALOGUES RECEIVED.

James Yates, 29, Little Underbank, Stockport.—*Catalogue of Vegetable and Flower Seeds.*

Richard Smith & Co., Worcester.—*Catalogue of Garden and Flower Seeds.*
E. G. Henderson & Son, Maida Vale, London, W.—*Catalogue of Vegetable and Flower Seeds.*

James Cocker & Sons, Aberdeen.—*Catalogue of Vegetable and Flower Seeds.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (J. V.).—Mr. B. S. Williams' "Orchid Growers' Manual" is a reliable work; it is published by the author at the Victoria and Paradise Nurseries, Upper Holloway, price 7s. 6d., post free 8s. Nesbit's "Practical Land Surveying and Practical Mensuration," published by Longmans, Green and Co., London, are what you seem to require.

Address (R. G.).—It is so long since the Melon you name was raised that we quite forget the address of the raiser; moreover, it is possible that it is not the same as it was several years ago. If the information you seek is really of importance to you we will make inquiry on the subject. There is no book such as you seek, but you will find the particulars in our "Garden Manual," post free 1s. 9d.

Coal Tar (W. B.).—This and gas tar are identical, being obtained from coal in the manufacture of gas, hence the dual name.

Senecio macroglossus (S. H.).—Apply to Messrs. Veitch & Son of Chelsea, or Mr. B. S. Williams of Upper Holloway.

Jasminum nudiflorum (J. W., Pershore).—The above is the correct name of the shrub, and indicates the habit of the plant in flowering at a time of the year when the leaves have all fallen. Nudiflorum simply means naked flowers.

Peat for Lilies (Leamington).—The peat can be obtained at any dealer in horticultural sundries, as you will see from our advertising columns; and when ordering it you should mention the plants it is required for. Dr. Wallace's work on "Lilies and their Culture," published at Lion Walk, Colchester, would no doubt suit you.

Concreting Vine Borders (Cambrian).—A layer half an inch thick of sharp lime and cement, mixed like mortar, and spread on a firm level flooring of stones, will be quite sufficient for your purpose if the fall be 1 inch in a foot from the back to the front of the border. You will need drainage over the concrete. It is only under very special circumstances that we consider concreted Vine borders necessary, as we have found by experience that there are few cases where the roots of Vines cannot be kept near the surface by such treatment as was described in our columns last week by Mr. D. Thomson.

Making Tennis Ground (F. R.).—The number of worms in the soil indicates that it is rich rather than otherwise, and of a wet rather than a dry nature. If that be so, then a layer 2 inches thick of sharp ashes and lime, over this an inch of soil containing no worms, then the turves laid in sand, would in all probability not only give you a firm, dry, and practically wormless lawn, but the grass would grow quite fast enough for your purpose. If your park is very dry and poor the plan described would not answer so well, but in that case there would be few worms, and these might be dispersed by free applications of lime water.

Heading Down Dracænas (J. H.).—We scarcely understand your question, but presume you wish to establish the tops and exhibit these as table plants. You may do this at any time by splitting flower pots and fixing them round the stems, keeping the light porous compost in them constantly moist. There is no better time for doing this than when the plants are just starting into growth, and in a warm moist stove. Good for table decoration are the small-leaved varieties D. Sydneyi and D. Ernesti, which are both bright and graceful.

Grafting Pears (F. J.).—You may insert one scion in each branch, two if the branches are as thick as your wrist, and if both grow retain the best for the future branch, removing the other. As many branches as there are now, provided they are not much less than a foot apart, just so many you must provide for forming the future tree. The scions, well-ripened wood of last year, should be taken off at once and covered with soil or cocoa-nut fibre refuse on the north side of a wall to keep them fresh and retard their growth, as the stock should be in advance of the scions when the latter are inserted. It is much too early to start your Begonias and Dahlias, to which we will

refer more fully in a future issue, more urgent matters now requiring attention.

Pruning Roses (Truthful Gardener).—You would in all probability make a great mistake by pruning the Roses that are starting into growth so freely. If you examine the shoots you will find the buds near the base dormant. Thus they will remain, provided the present early growths are permitted to remain to "take the sap;" but if you remove these the lower buds would inevitably be forced into growth, and probably be destroyed by frost. The safe course is undoubtedly to defer pruning for at least another month, and possibly even longer, much depending on the weather in early March and the condition of the plants.

Cucumbers Dying (E. F.).—Information which you have not afforded is requisite to enable us to answer your letter satisfactorily. You do not say how long the plants have been bearing, but only that they continued fruiting until Christmas. If they were bearing heavily throughout last summer they are probably exhausted, and it is not likely they will again become vigorous. The only means of restoring them is to maintain a bottom heat of 80°, and to encourage the production of surface roots by periodical top-dressings of rough turfy loam and decayed manure, maintaining also a genial atmosphere and a night temperature of 65°, falling a few degrees towards morning, and increasing as much as possible by sun heat in the daytime. We suspect, however, the plants are exhausted, and you will do well to raise others promptly.

Propagating Sonchus laciniatus (A. S., Bedale).—If you have an old plant place it in moderate heat, and when it has started freely into growth take off the shoots about 2 to 3 inches long and insert them in pots of very sandy loam. Plunge the pots in a propagating frame, and be careful in supplying water until it is seen that the cuttings are making some advance; then gradually expose them to the air, and when well rooted and hardened pot them singly into a compost of turfy loam, sand, and leaf soil.

Aquilegia glandulosa (H. S., Bucks).—The description and remarks you mention were published in some notes by an experienced cultivator on the Aquilegia, page 53, vol. iii., July 21st, 1881. The particular species was thus referred to:—"With the lovely Siberian A. glandulosa we have experienced much trouble. At one time we concluded it was very delicate and could not endure our winters; now, however, we have altered our opinion, consider it quite hardy, and incline to the belief that it is of biennial duration only—at least this has been our experience in the London district. It well repays for all extra care and trouble; it grows in a tufted manner, and is dwarf in habit, seldom exceeding a foot in height. The leaves are triternate, segments coarsely lobed. Stems one-flowered. Flowers 3 to 4 inches in diameter; sepals nearly oval, very much larger than the petals, deep rich blue; petals the same colour, but tipped and margined with creamy white. It prefers a somewhat light and well-drained soil, but not peat. It flowers in May and June."

Amaryllises from Seed (E. E. E.).—The seed should be sown in light sandy soil and placed in a temperature between 60° and 70°, where, if the seed is good, germination will commence in about a fortnight. The plants will flower the second or third year, but they do not reach their best condition until about the fourth year, when, if they have been well grown, the bulbs will be strong. The number of good varieties obtainable from seed depends upon the quality of the strain. If the seeds have been gathered from carefully hybridised flowers of the best types in cultivation, three-fourths of the seedlings may be expected to be fairly meritorious, and some will probably excel their parents in size or colour of flower.

Cool House Orchids (Idem).—The following is a list of useful, distinct, and attractive Orchids suitable for such a house as you describe:—*Adiantum aurantiaca*, *Barkeria elegans*, *Cœlogyne cristata*, *Cypripedium insigne*, *Dendrobium Jamesianum*, *Epidendrum vitellinum*, *Lælia autumnalis*, *Lycaste Skinneri*, *Masdevallia Harryana*, *Odontoglossum Alexandræ*, *O. cirrhosum* and *Pleione humilis*. Some interesting particulars concerning cool house Orchids were published in this Journal, pages 240 and 241, vol. vi., March 22, 1883.

The Calabash Tree—Crescentia Cujete (Surrey).—The plant you mention is a native of the tropics of America, where it is called Tutuma. It attains the height of 20 feet. There are several varieties of the tree, producing various forms of fruit. These are from globose to bottle-shaped, and from 2 inches to a foot in diameter. The outer skin is thin and fleshy; the shell is hard and woody, enclosing a pale yellowish soft pulp, in which are embedded a great number of flat seeds. When the pulp and seeds are removed, and the outer skin taken off, these shells are used by the natives for all sorts of vessels; and some of the long small-fruited kinds serve for spoons and ladles. Some are large enough to hold a gallon, and as they stand the fire well they serve to boil water in. The thicker parts are used as button-moulds. The Caribs engrave the outside with a number of grotesque figures, which they sometimes colour black or red. The pulp is sometimes eaten, but is not agreeable, and is sometimes used as a poultice; a syrup made of it is esteemed by the natives for disorders of the breast, in contusions and inward bruises. The wood is very tough and flexible, fit for coach-making, and is frequently used for making saddles, stools, and furniture. The leaves and branches are eaten by cattle in times of scarcity.

Employment at Kew (Querist).—To obtain a situation at Kew you should write to the curator, Mr. John Smith, stating your desire and where you have been employed. Forms will then be sent to you, and, if these be filled up satisfactorily, your name will be placed on the books to await your turn for a vacancy. With steady perseverance you may there acquire much useful information, which, if judiciously applied, will be of great service to you in after life. "Colenso's Arithmetic," published by Longmans, price 4s., is a standard work. Tables of the French weights and measures are given in "The Gardeners' Year Book," published at this office, price 1s.

Ferns for Unheated Fernery (L. W.).—Besides the choice species and varieties of British Ferns the following would probably succeed in your very mild climate:—*Cyathea dealbata*, *Dicksonia antarctica* and *Blechnum covadense* as Tree Ferns; also such exotic Ferns as *Adiantum pedatum*, *venustum*, *cuneatum*, *formosum*, *reniforme*, *colpodes*, and *tinctum*; *Asplenium eburneum*, *biforme*, *bulbiferum*, *dimorphum* and *reclinatum*.

Cyrtomium falcatum, and Lastreas intermedia, marginalis, and many others; Nephrolepis exaltatum and tuberosum; Onychium japonicum, Goniophlebium appendiculatum, Pteris argyrea, cretica albo-lineata, tremula, and umbrosa; several Polypodiums, and such Selaginellas for margins as denticulatum, also Wildenovi and umbrosum. We know also that the climbing Fern Lygodium scandens which is generally grown in a stove will succeed if planted out in your cool fernery, as also will the beautiful new Fern Lomaria discolor bipinnatifida. Those and many others are worthy of trial, but as you do not state the number you require we can only give you a suggestive list.

Destroying Woodlice (F. H.).—There are various ways of destroying them, the most wholesale plan being to place some pieces of boiled potatoes near to the places they infest and cover with a little hay, and in the morning pour boiling water over the hay. Another plan is to wrap a boiled potato in a little hay very lightly, and place it in a flower pot laid on its side near to where the woodlice congregate or commit their depredations, and the following morning shake the pests from the hay, in which they will be secreted about the bait, into a bucket of boiling water. Repeat for a time, and the pests will be reduced so as to do very little injury. Parsnips boiled nearly soft, cut into slices, and dressed with arsenic form deadly baits. These, if placed where the insects abound, will reduce their numbers considerably. It is, of course, necessary to so place the poisonous baits that no accident can possibly arise by their misuse.

"The Gardeners' Year Book and Almanack" (B. L., Liverpool).—You have made a serious mistake. This almanack is quite correct, and the 29th of February is not omitted. The mistake, and it is presumably unique, occurs in another work that is not published here, and in which as you say, "Lady day, Michaelmas day, Christmas day, and the year ending on a Tuesday instead of on Wednesday are all wrong." We have referred to the work, and find that in consequence of the strange omission indicated the calendar is inaccurate from the end of February to the end of the year. It is easy to make mistakes, as your letter proves, and we must request that you will be more careful in your assertions; and, further, we must ask you to promptly correct any similar misstatements that you may have made publicly or privately elsewhere.

Vines Unhealthy (A Lady).—We are obliged by your letter, which clearly describes the condition of your Vines. Their state appears to be precisely as we anticipated. They have been seriously overcrowded, no doubt overcropped and half-starved by the want of water—in a word, they have been grossly mismanaged, and we fear nearly, if not quite, ruined. You can find few or no roots in the border, because they have been driven downwards, and probably into the subsoil in search of the moisture that was denied them near the surface. The support they sought was not found, hence the flagging of the foliage. The person in charge on observing this applied what he conceived was the proper remedy, but he commenced at the wrong end—namely, by limewashing the glass instead of watering the border, which you observe is inside the house. He was not a gardener, even if he considered himself one, and probably did not read the Journal, or if he did, read skimmingly, slightly, and profitlessly, for such readers we fear there are. As to the renovation of the Vines, you cannot do better than follow as exactly as possible the practice described by Mr. D. Thomson in the last paragraph but one of his very useful article on page 58 last week; but in addition, if we found the soil in the lower portion of the border containing the roots very dry, we should soak it with water, and the dry roots would the sooner emit fibres into the fresh soil and manure, which must be kept regularly and decidedly moist, and not much water will be needed for this provided the surface of the soil is well mulched as directed. The rods we presume are pruned now, the laterals being shortened nearly close to the main rods, or to the lowest good bud on each lateral. The next process will be disbudding. Remove gradually the buds as they start, reserving only the stronger and more promising to form shoots from 15 inches to 18 inches apart along each side of the rods. Allow these to extend for a length of 2 feet, then pinch off afterwards all sub-laterals as they form at one leaf—that is, as soon as a leaf forms as large as a shilling, nip off the shoot just beyond it. By adopting this practice, maintaining a genial atmosphere, keeping the foliage clean, and ventilating the house judiciously, especially admitting air during the spring and summer very early in the morning, you will, we hope, secure stout laterals and well-developed foliage. This accomplished, and not till then, can good fruit be expected. Do not force the Vines, but allow them to start naturally, as forcing Vines so exhausted exhausts them the more. We trust our reply will be useful, and you are quite at liberty to write to us again if you need further information either now or as the season advances. We may add that the laterals you sent were microscopically examined, and contained practically no "stored-up food," while well-nourished and matured canes are crowded with starch granules.

Names of Fruits (Fred Scott).—1, Rymer; 2, Winter Greening; 3 and 5, Not known; 4, Ten Shillings.

Names of Plants (P. G. H.).—We have repeatedly stated that we do not undertake to name more than six plants at one time. 1, Ceanothus rigidus; 9, Berberis Darwini; 10, Garrya elliptica; 11, Veronica speciosa; 12, Thujaopsis dolabrata; 13, Ligustrum japonicum. Some of the others were not in suitable condition for naming. (X.)—Unrecognisable, the flower being quite dried up in the cotton wool.

Erratum.—In the article on "Plant-forcing" in the last issue of the Journal (page 66), for "hotbed of loam and stable litter" read "leaves and stable litter."

COVENT GARDEN MARKET.—JANUARY 30TH.

TRADE keeps quiet, Grapes scarcely maintaining their value. Cucumbers lower. Kent Cobs stagnant.

FRUIT.									
		s. d.	s. d.			s. d.	s. d.		
Apples	½ sieve	1 6	to 5 0	Nectarines	dozen	0 0	to 0 0		
"	per barrel	0 0	0 0	Oranges	100	6 0	10 0		
Apricots	box	0 0	0 0	Peaches	dozen	0 0	0 0		
Chestnuts	bushel	10 0	0 0	Pears, kitchen ..	dozen	1 0	1 6		
Figs	dozen	0 0	0 0	" dessert ..	dozen	1 0	5 0		
Filberts	lb.	0 0	0 0	Pine Apples English ..	lb.	2 0	3 0		
Cobs	per lb.	1 3	1 4	Plums and Damsons ..		0 0	0 0		
Grapes	lb.	1 6	5 0	Strawberries	lb.	0 0	0 0		
Lemon	case	15 0	21 0	St. Michael Pines ..	each	2 0	8 0		

VEGETABLES.

		s. d.	s. d.			s. d.	s. d.
Artichokes	dozen	2 0	to 4 0	Mushrooms	punnet	1 0	to 1 6
Beans, Kidney	100	1 0	0 0	Mustard and Cress ..	punnet	0 2	0 0
Beet, Red	dozen	1 0	2 0	Onions	bushel	2 6	3 3
Broccoli	bundle	0 9	1 0	Parsley	dozen bunches	3 0	4 0
Brussels Sprouts ..	½ sieve	1 6	2 6	Parsnips	dozen	1 0	2 0
Cabbage	dozen	0 6	1 0	Potatoes	cwt.	4 0	5 0
Capsicums	100	1 6	2 0	" Kidney ..	cwt.	4 0	5 0
Carrots	bunch	0 3	0 4	Rhubarb	bundle	0 4	0 0
Cauliflowers	dozen	2 0	3 0	Salsafy	bundle	1 0	0 0
Celery	bundle	1 6	2 0	Scorzonera	bundle	1 6	0 0
Coleworts	doz. bunches	2 0	4 0	Seakale	basket	1 0	1 6
Cucumbers	each	1 0	1 6	Shallots	lb.	0 3	0 0
Endive	dozen	1 0	2 0	Spinach	bushel	2 6	3 6
Herbs	bunch	0 2	0 0	Tomatoes	lb.	0 3	0 10
Leeks	bunch	0 3	0 4	Turnips	bunch	0 3	0 0
Lettuce	dozen	1 0	6				



THE WELSH BREED OF CATTLE.

(Continued from page 76.)

ALTHOUGH the cattle are reared as natives in many parts of Wales in mountainous districts, yet it is affirmed that their docility is remarkable. A stranger may walk safely into a herd of cows, but it is not safe to do so where there is a bull unless accompanied by some person acquainted with its habits. Bulls after they are one year old should always be kept in the house, not only avoiding accidents, but enabling the farmer to regulate the times of calving. The best quarters for a bull is that which we fully explained a short time ago in this Journal when writing on the improved dairy cattle in November last, when the advantages to the farmer and his safety, together with the benefit of the bull were fully explained. The Welsh cows are so gentle that they stand well to be milked in the yard or in house, and with their large, full eyes and quiet expression look the very picture of docility. They are, as it is stated by Mr. G. T. Bowden of Gomer, near Derby, a celebrated breeder of these cattle that never ties up any of his cattle excepting those which he milks and finishes off for the butcher. The calves when reared on their dam's milk at one year old are as big, with better hair and coats than those reared by hand at two years old. Other calves reared by Mr. Bowden live on skim milk, Simpson's calf meal, and a little dissolved oilcake. For feeding purposes it is considered best to buy barren heifers and bullocks turned three years old. These points prove at once that these cattle are not behind the best stock of this country when treated in a generous way.

With the view of fairly representing the worth of the Welsh breeds we will now give what is stated in the Journal of the Royal Agricultural Society by Mr. Algernon Clarke. He says that according to Mr. Morgan Evan, one of the best authorities on the subject, "The colour of the Pembrokeshire or 'Castlemartin' is black; the horns are of great length, yellowish white tipped with black, wide spreading and curving upwards; the head is of medium length, longer than the West Highlands, but somewhat longer than the Devons, approaching the Herefords or the improved Sussex in form. The nose is small and the neck fine, with little tendency to "throatiness" in some breeds; the eyes are prominent, but without the untameable gleam of the West Highland or Chillingham cattle, domestication having removed any special traits of wildness and of ferocity; the coat is long, not straight like the Highland cattle, but wavy, or sometimes curly; the forehead is broad. Several writers have remarked on the colour of the skin as being of an orange-yellow, and the coat on the barest part of the body as being of a brownish hue. Some of the best breeders in Pembrokeshire are careful to maintain this characteristic in their herds. This, along with a yellow horn and a wavy coat, almost invariably indicates a beast that will feed well either on grass or in the stall. A short, crisp, coal-black coat is not to be compared with one that is long and wavy. The meat produced by these cattle is excellent, and not to be surpassed in texture and quality. The milking properties of the cows are certainly equal, if not superior, to those of most modern improved breeds."

Mr. Evans also says, "Welsh black cows are on the average equal to any class of cows in milk-producing capabilities. Taking into account the climate, soil, and average homestead accommodation in the county, the Pembrokeshire cattle can be bred to feed cheaper than Shorthorns or Herefords. Attempts to improve the breed by crossing have not been attended by success, though the Devons amalgamated best." Again we find it recorded that "the Anglesea cattle are very

like the Pembrokeshire; also that the head of the ox is very frequently heavy and bull-like. Davis in his time attributed the bull-like features in the head and dewlap "of the Anglesea ox to the fact that the calves were not weaned in Anglesea until double the time which they are weaned in other counties, together with their not being gelt until they are about a year old."

With the latter fact we quite agree, for in practice we go farther, and contend that they should not be castrated at all when required for sale at early maturity. They must of course be kept quiet in separate boxes, and never used for stud purposes, and then the animals will yield a very high rate of weight for age of excellent quality, especially if slaughtered at about eighteen or twenty months old, for they will be heavy enough in the carcase to meet the best consumers' requirements, and eat like ripe old ox beef. It must be remembered that to carry out this idea we have in such a case always kept the animals at full head, commencing as fat calves, and never losing this condition; then in comparison we have obtained a large percentage more beef from animals never castrated than from steers, each being kept alike in food and accommodation, and killed at about eighteen or twenty months old.

We have given several quotations from breeders of the Welsh cattle, and although some little difference may be observed in their statements, yet it is no more than may be expected from the difference occurring in raising the cattle under varying conditions, and of selection by the breeders, as well as the influence of soil and climate. Although the principality of Wales is not very extensive, yet the mountains and valleys, together with seacoast conditions, are surroundings which effect as much variation in style and type of the Welsh cattle as it does in other breeds under the like circumstances throughout the kingdom.

We will now quote from the last Smithfield Club report of the *Agricultural Gazette* of December 17th: "The weights of animals at Islington were considerably higher than at Birmingham. The monstrous Hereford cow Giantess with her family won attention and prize money at Reading and York, came to Islington to find herself as to her weight behind a Shorthorn cow of Lord Sudeley's breeding, a descendant of Mr. Wetherell's branch of the famous tribe of Sockburn Sall. The only beast heavier than this cow (which inherited through her sire the size and character of the Winsomes at Holker) was a gigantic Welsh, which weighed 22 cwt. 1 qr. 6 lbs. at three years eleven months two weeks, and was far from being fat. He might be made (did public opinion favour such displays) to weigh a ton and a half if kept to the age of some Highlanders, of which more than one exceeded six years old. It was not difficult to see at Islington that numerous as are our breeds of cattle now, there is yet material among them to form more."

This last allusion applies most appropriately to the possibilities of what science and practice with great experience may effect in the breeding of Welsh cattle. It is also reported that the Welsh breeds at Islington were in rather full entry. Major Henry Platt's North Wales steer, to which we have referred as to weight, &c., which took the breed cup, was of gigantic size and weight of flesh, with more of size and symmetry and beautiful quality than is sometimes seen in the character, style, and type of the Welsh animals. The fact of this animal having taken the breed cup, together with his symmetry, quality, and enormous size, must, to the mind of every experienced cattle breeder, with the conviction that the strain from which this animal descended may by careful selection in breeding be made the basis of a race of animals valuable as milking stock and capable of yielding, at weight for age, carcasses of beef not to be exceeded in weight and quality by any other breed of cattle.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The busy time for sowing pulse and Lent corn should be anticipated, so that any work which can be done with the horses may be attended to now or at any other time when it will prevent the displacing of horse labour in tillage work at those periods. Our busiest periods may be said to occur at the seed time for Lent corn, Beans and Peas, early Potatoes, Mangolds, and Cabbages. The next time when all hands will be employed, as well as horses, is the haying time, which in some districts lasts from the second week in June until the corn harvest commences; which, in the case of an early harvest and sometimes in the event of a late one from adverse weather, usually delays the ripening of the corn, and also delays the haying time. In the grazing districts of various parts of the kingdom the question of ensilage is becoming of extreme importance, because if the silos are properly constructed the materials placed in them will then be secure from injury. The question of haying will thus be reduced to a minimum, for ensilage can be carried in any weather with ordinary care. Nor is it necessary in certain soils to have an expensive silo built, for a farmer from America has stated to us that they used any dry soil for a silo by digging a pit of the required dimensions and placed their Maize and green fodder, properly weighted, in pits with the sides formed of the bare soil. In this way, also, they place their Potatoes and other root produce, although not in such large bulks as they do of Timothy Grass

and other green produce, and without being weighted, but merely covered with a little earth and thatched with any material like straw or haulm, and shaped to shun the water on the surface by a small trench dug round the outside to carry off surface water caused by the rainfall, melting of snow.

Hand Labour.—Forking cut grass wherever there is but little may now be done by the women; but in some parts of the country women as field workers are still available, while in others they will not work at all in the fields, except perhaps in haying and harvest time. Hedging and ditching may still be done, but especially the dead hedges, which are much required on the chalk and limestone hill districts. All the hardest and most lasting wood is reserved for this work, with white and black Thorn hushes for filling in between the stakes and ledgers. There is an old saying that "an Elder stake and a Yew ledger will make a hedge to last for ever." The weather has been very favourable for planting orchard trees, which is now completed; and in any case in the rural districts the orchard land should be wired in with wire netting—at least where young trees and bush fruit trees have been recently planted, a protection against both hares and rabbits.

Live Stock.—Sheep feeding off roots on the open fields are doing better than usual, and this will tell in favour of the land when sown with Lent corn, as well as the benefit of the sheep; for in some years past, especially the winter of 1882-83, the land was so sodden with rain water and so trodden by sheep feeding on the root crops that it not only required much extra horse labour in tillage before seeding with Lent corn, but that any Barley grown on such land did not, as a rule, prove a malting sample or a full crop. Cattle now feeding in the stalls should have only a moderate allowance of roots—say of Swedes 70 lbs., of Mangolds 56 lbs. per day, and it is much more economical to reduce all corn or cake given them into meal, to be mixed with cut roots, and also more healthy for the cattle. Much has been said on the subject of quantities of oilcake and corn per day. We, however, do not exceed the use of 4 lbs. of best linseed oilcake and 2 lbs. of bean or barley meal per day. We never give hay, but only sweet straw of Oats or Wheat *ad libitum* loose in the racks, the residue or unconsumed portions being used for littering the pens. As a rule, a bullock will not make more than 10s. per week increased value. Let the home farmer calculate the cost of the above-named food and mode of feeding, and it will be found that the advantage or profit is not more than 3s. per week; but in case of hay-feeding instead of straw it will absorb 2s. 6d. of the otherwise profit, whereas the cattle will be much healthier on straw-feeding than when feeding on hay. We have frequently had cattle refuse their roots whilst eating hay, but never when feeding on straw.

OUR LETTER BOX.

Sowing Seeds for Pasture (J. R.).—If your land is clean where you have dug in a crop of Mustard, it must be allowed to remain until dry weather in March or April, then work it down by harrowing and rolling until perfectly fine on the surface. It will be better not to dig the land again; if it should be hard let it be horse-hoed with the points, this will bring up any unbroken portion, which may be reduced to fineness by harrowing and rolling. If it is intended for permanent pasture you will require about 3 pecks of mixed grass seeds for a quarter of an acre. The ready-made mixture of sorts of grass seeds can be obtained from the firms you name, but you should state the nature of the soil and the object of laying it down. If sown with Barley 2½ bushels per acre. The seeds of grass will only require ordinary weeding, and the Barley crop will pay, independent of the grass requiring no attention until after harvest. If sown alone in April the weeds will be a torment all the summer, and will render necessary the mowing of the grass and weeds together twice during the summer. We prefer sowing the seeds with the Barley, which will protect the young grass plants and prevent injury from weeds until the plants are strong.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1884. January.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Inches.	deg.										
Sunday	20	30.514	42.7	40.4	S.W.	41.9	50.0	39.4	64.5	34.8	0.010
Monday	21	30.517	45.0	41.2	W.	42.3	51.3	41.3	64.8	36.4	—
Tuesday	22	30.265	49.0	45.6	S.W.	42.9	51.7	44.0	55.4	39.8	0.110
Wednesday ..	23	29.761	51.5	50.6	S.W.	44.4	54.7	47.7	53.3	41.3	0.160
Thursday	24	29.846	38.5	34.5	N.W.	44.1	49.5	36.9	69.6	32.0	—
Friday	25	29.710	42.3	39.7	S.W.	41.8	47.3	37.0	59.2	32.5	0.270
Saturday	26	29.313	39.3	36.7	W.	41.6	50.0	37.6	50.0	34.5	0.549
		29.939	44.0	41.7		42.7	50.6	40.6	59.5	36.6	1.099

REMARKS.

20th.—Sunshine in morning, rest of day dull; drops of rain about 9 P.M.
 21st.—Fine all day, but not very bright.
 22nd.—Windy all day with rain, and a gale in evening.
 23rd.—Wild wet morning; violent gale all day.
 24th.—Bright throughout; rather good sunset.
 25th.—Fine till afternoon; violent squall, with rain and hail, at 4.40 P.M.; lightning at 5.45 P.M.
 26th.—Squall at 4.30 A.M.; dull morning; wild afternoon, with rain; gale from 5 to 9 P.M.; lightning in evening.
 Probably the most windy week for many years past, the gales of the 23rd and 26th being of extreme violence; the latter characterised also by the exceptionally rapid rise of the barometer as the centre passed this station—viz., 0.06 inch in eight minutes from 7h. 33m. P.M. to 7h. 41m. P.M., or at the rate of 0.45 inch per hour. At Isleworth occurred nine minutes earlier, and was at the rate of 0.43 inch per hour.—G. J. SYMONS.



7	TH	Royal Society at 4.30 P.M.
8	F	Quekett Club at 8 P.M.
9	S	Royal Botanic Society at 3.45 P.M.
10	SUN	SEPTUAGESIMA.
11	M	
12	TU	Royal Horticultural Society, Fruit and Floral Committees at 11 A.M.;
13	W	Society of Arts at 8 P.M. [Annual Meeting at 8 P.M.]

LOOKING BACK.



HE labours of cultivators and hybridisers have been devoted to improving the wrong Potato."

Gad zooks, sir! and now after a tolerable life's work in striving to improve our chief esculent, *Solanum tuberosum*, what can I say in answer as I read the above extract at page 58? The "if," at any rate, may be read large at the beginning of the paragraph. It was only the other day, at a committee dinner at the Crystal Palace, whilst conversing with my friend Mr. Douglas about Potatoes, I said I had "run to the end of my tether," and done what I set myself to do from the beginning—crossed and handed down the concentrated blood, so to speak, of all the best of our good old English kinds, and of late years re-crossed again with the best of the new American sorts, till I have achieved to disease-resisting varieties as near as may be, with early proclivities, good bearing and keeping properties, and to flavour all that can be desired; and lo! just as I am resting on my oars, and consoling myself upon having set my footprint upon the sands of time, I read your leader, which tells me of a Potato that has been lying *perdu* at Chiswick and Kew to prove that we have all along been wrong! But—I have allowed you the "if"—it has yet to be proved that this *S. Maglia* will cross with *S. tuberosum*. I hope it will, as it will relieve us from sighing for "new" Potato "worlds to conquer." It is just the ground we must start afresh upon; but it is not exactly new to me, as I tried for four consecutive years to cross *S. Fendleri*, a New Mexican species, with our English varieties and failed, which gives me reason to say that we must not reckon too surely upon *S. Maglia*. I not only failed myself in crossing *S. Fendleri* or inducing it to seed, but it proved also unmanageable with a gentleman (a correspondent, I believe, of Mr. Baker) in America, and I think it may prove interesting for your practical readers if I resuscitate some letters with my answers immediately treating upon the subject.

"Charlotte, Vermont, U.S.A., January 5th, 1876.

"To MR. FENN,—It seems desirable that I should employ your beautiful and excellent seedlings to give to our strong-growing American sorts finer quality and flavour; and probably, if there may be any object in doing so, you might on the other hand, by an infusion of American blood into some of your seedlings, increase their yield, without, it is to be hoped, materially impairing their high quality.

"Twenty years ago there was little disparity, as I suppose, between English and American Potatoes. The majority of the varieties which we now employ, or certainly those which are grown most extensively, have originated since that time, and have descended from semi-domesticated varieties imported from South America. Thus from such an one Mr. Goodrich got the Garnet Chili; from the Garnet Chili Mr. Breese raised his seedlings, the Early Rose, Peerless, Breese's Prolific, &c.; and, impregnating the Early Rose with pollen from the best of the old sorts, I obtained the Snowflake, Alpha, and Ruby.

"The advance made from generation to generation in this line by such a course of seedling is very marked, and gives ground to hope that if the work be continued, especially in the manner I have suggested, we shall ere long attain to perfect results, possessing ourselves of varieties which will combine high quality and fine appearance with satisfactory vigour and productiveness.

"I have named and put in commerce only the three seedlings
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mentioned above. They have been selected from many hundreds. The first and second you may possibly possess; the third is only to be sent out for the first time this year, though it was at the International Exhibition at Alexandra Palace, and with others received a certificate of merit. Besides this, I have many seedlings raised last summer, some of which are of very fair promise. Any of these (and a packet of the hybridised seed which I shall sow the coming season, should you care for it) I will be glad to send you in exchange for a selection of your favourites, such by preference as will furnish good pollen. The pollen of nearly all our newer American sorts is utterly ineffective (with the Snowflake sterility carried so far that the flower buds very rarely open, but fall away early), so that it is only as seed-bearers that they can be employed in cross-breeding.

"Hybridisation of species has been one of my aims. Besides the original species from the Andes, *Solanum tuberosum*, I cultivate one very distinct from our western territory of New Mexico, *S. Fendleri*. As yet all my pains taken to impregnate it with pollen of the cultivated species has proved unavailing, though partially developed fruits have followed my operations, only to fall away, however, before maturity. When I learn the conditions which the plant requires and more fully meet them, I shall succeed, doubtless. I think I have given the real cause of my failure, because the plant is unable to set its own fruits with me.

"Peru can furnish us still another species, *S. montanum* (vide 'Bot. Mag.'), and I am very desirous to obtain it.—I remain, yours sincerely
C. G. PRINGLE."

"January 27th, 1876.

"To MR. PRINGLE,—I seem already to have entered into your ideas concerning the minglings of blood of English and American kinds. For three years consecutively, though as yet ineffectually, I have tried to cross my Rector of Woodstock seedling with your Snowflake, as being the very best of the American varieties yet sent over to us. Snowflake refuses to produce me a globule of pollen or to become impregnated. For the latter I do not care, as I desire your seedling to become the male parent, in order more certainly to infuse productiveness; Snowflake refuses *in toto*. This also has been the case with the other American varieties, till this season a stool of that shy bloomer Willard's Seedling threw a stalk of flowers, and to my great satisfaction gave me some pollen upon my thumb nail. I immediately applied the dust to the pistils of three prepared florets of my seedling Bountiful, and in a few days I had the inexpressible satisfaction to find impregnation complete, and the berries sturdily swelling.

"Again, three years ago, after applying the pollen of Bountiful to some hundreds of pistils on the blossoms of the American Late Rose, I was in despair till two farewell bunches of flowers appeared in the row, when as a last resource I again applied the pollen of Bountiful, and perseverance gave me five impregnated berries. This circumstance revived my hopes in Snowflake, and I intend through this season to watch for her tardiest flowers, and so on to try and achieve successful impregnation with Rector of Woodstock. I sowed the seed of the above international crosses, and I have now by me 400 seedlings verging from dark red though every intermediate shade up to pearl white, and from perfect rounds to the handsomest types of kidneys—no eyes to be seen upon the majority of them—a more promising batch of seedlings I have never raised. Now, if in my object I shall have infused English flavour, and maintained the superior cropping qualities of the American varieties, I shall have fore-wrought-out your suggestions in the second paragraph of your letter. May it prove so! (Mem., 1884, it has).

"Twenty years ago Potatoes were "much of a muchness," both here and with you. Nearly as long ago I crossed our old red Regent, with a transatlantic sort called the American Black Kidney. This, my first artificial cross, proved very prolific, but of no use, not one of the 500 progeny was equal in flavour to the male parent, the Regent. One of the seedlings became a favourite with the cottagers about here (mem., 1884, I then resided at Woodstock), and another I kept as a breeder for good form, though with a bad internal stain, which it persists in handing down to posterity. I will send you a few of both, though not for distribution, merely to show you the result of a new idea wrought out long ago, and what came of it. There is, however, a variety lately come into commerce here called Blanchard, certificated by our Royal Horticultural Society, which very nearly indeed resembles my Purple Blush, the Anglo-American cross first mentioned. The other I call Cricket Ball; perhaps in your soil the internal stain may disappear. At any rate, you will see I have begun to cross-breed again with your new semi-domesticated varieties, and because of their differing from your old sorts I feel almost certain of attaining to better results, and thus exhaust the purport of your third and fourth paragraphs.

"I observed your new seedling, Ruby, at our International Exhibition, but I abide by Snowflake, as I want to get a good white cross from it. Let me beg to propose for you and me to work in concert thus:—Cross Snowflake with Rector of Woodstock, and *vice versa*, if you can. Cross Bountiful with Willard's Seedling, using the latter for the male parent only. With Snowflake cross Rector of Woodstock, and we shall be both aiming at the same results for after comparison, and for certain comparative results, by your adopting the latter procedure with the two others which I have accomplished. Then we shall be able to decide, without further beating about the bush, on which side of the Atlantic a real improvement lies. This will do for the present I think. In regard to your fourth paragraph, as I dare not for conscience sake request more of you, when I read of "those others" of the Andes and New Mexico that you propose to test, I must rest on my present oars for a year or two, as I have

nearly 100 of my assorted four-year-old English varieties now under their final probations.

"Apropos of Peru. Amongst the batch that the parents of Bountiful produced (Fenn's Onwards by Early Emperor) was a peculiarly odd-coloured seedling with crumpled foliage, which for its oddity I took up to our Royal Horticultural Society's Committee-room at South Kensington, but merely to find that its exact prototype was there exhibited, and growing in their garden at Chiswick, from tubers they had had sent them that very season as a wildling from its primitive habitat in Peru. I hope you will be able to procure *S. montanum* from thence, though, for my part, in regard to the creation of novelty, I would pin my faith to new species, such as *S. Fendleri*, from New Mexico, for had not our old English and American, and our present semi-American species and varieties their origin in the signs of the Andes, Peru, and South America?"

"In conclusion, allow me to propose to send you, without waiting for your answer, some seedlings of mine that will interest you, including Bountiful and Rector of Woodstock, to carry out the above proposed crosses.—ROBT. FENN."

"Charlotte, Vermont, U.S.A., June 27th, 1876.

"To MR. FENN,—Numerous botanical expeditions among our mountains into our deep dark swamps and along the shores of our lake almost constantly occupying my time, have been allowed too long to prevent the acknowledgment of the receipt of the second box of Potatoes you were so good as to despatch to me. The first sending has never been heard of on this side; but this last one reached New York in due course, and after some delay in our Custom House arrived here in time to be planted June 7th.

"Thanks to your very careful packing the Potatoes bore the long journey without any detriment. I planted them with great care, and they appeared above the soil in a remarkably short time, and since then have pushed on rapidly. While the greater part of the collection was placed in my own grounds, seed of several sorts was sent to the mountains to enlarge the collection which I am having grown there, where, if I fail at home to get the crosses we so much desire, I shall, as I have great confidence to believe, realise success.

"You mention the Willard as the only one of our new strain of Potatoes, these lately descended from the wild or semi-wild South Americans, which gives you good Potatoes. Except its mother, the Early Goodrich, and the very wild larger white of Mr. Goodrich, I know of no others similarly fertile. I have been compelled to rely on the old strain of Americans, some of which are very productive. The Excelsior I have used oftener—it is the pollen parent of the Snowflake. It bears fruits very profusely, is a great cropper, and is, as our Potatoes go, of best flavour and quality. It would surely give your seedlings vigour, and in a little tin box, to go by sample post with this, I send you a small tuber of it, numbered 2. With it are three little tubers of *S. Fendleri*, which though so very small, are nearly of average size. Under the numbers 6 and 8 I also include two grandchildren of our excellent Peachblow; their mother was a beautiful white kidney of fair quality, which was originated at London, province of Ontario, Canada, and is called London White. I send these two tubers because the sorts are very strong growers and will supply you with the most potent of pollen.

"And how I should enjoy leading you along the sinuous shores into the deeply indented bays and around the towering wooded headlands of this lake of blue waters, or over the green glades and darker Fir-clad hills to the mountain summits—patches of the soil and flora of Labrador or Southern Greenland lifted up in our midst a mile above the sea! You would perceive a fitness in the name of our northern State.

"But if such pleasure is denied us both I beg you to believe that your friendship is deeply appreciated here, and the kindness and patience with which in the very busiest part of the year you met and so fully satisfied my requests.—C. G. PRINGLE."

I have not yet learnt how the Potatoes behaved in Vermont. I still live in hopes of doing so, and I will now, with your permission, let your readers know how the Potato world has wagged with me in regard to my Anglo-American seedlings:—Suttons' Early Border, Early Regent, Fiftyfold, Reading Russet, and Prizetaker, are the commercial results of the American Willard and Late Rose crosses with my Bountiful. Two years after I came here I had the very great satisfaction to secure a few globules of pollen from Mr. Pringle's American Snowflake, from a bunch of late blossom in my garden, so late indeed that the flowers of the Rector of Woodstock were over, and in short every other blossom for all my sorts, excepting by great good luck a couple of late florets, which were unfolding upon a stalk of a condemned seedling of the Willard by Bountiful. I never impregnated more carefully, or more nervously, than I did those two blossoms, and my anxious wish at the time was that they had belonged to Rector of Woodstock. At any rate I had got the pollen from the right source. One only of the berries swelled and ripened the largest Potato fruit I ever saw. It produced me fifty seeds, every one of

which germinated in the following season. This has proved a very good disease-resisting cross, giving to commerce Suttons' Ringleader, Favourite, and Lady Truscott; also, gone into stock for another year, two seedlings provisionally named Golden Spot and New Bountiful. The Royal Horticultural and Crystal Palace certificated Alderman De Keyser I hold in my own hands for the present, along with a few others of the batch, to undergo further probation. Thus ends my Potato history up to the present.

I am your oldest living correspondent, or I would not presume to become a teacher in your pages at this time of day, although, when I think of the old ones and look at the young ones, there is not much reason to call each other names. We all did, and you all are doing good. *Esto perpetua*. I think, though, I can impart a few words of advice anent the Potato. Doubtless an extra fillip will be given to the cultivation of the esculent now that the Cinderella of Nature is countenanced by nobility, and the savants have questioned our doings. The outcome of the popularity that our Potato shows have engendered is to have created a legion of breeders of the esculent by crossing—I fear indiscriminate crossing. The Potato, like everything else, must be served an apprenticeship, so to speak, and, simple as it may appear, it has been a long and expensive study for me. I find, too, my seedlings are being extensively used for cross-breeding at haphazard with any variety. Now, I cannot do so myself without knowing it would deteriorate their quality. Size and appearance may be so gained, though almost invariably at the expense of quality. Whoever rises from my shoulders I should like them to rise to something better; to breed from my seedlings at haphazard is to go backwards instead of forwards. It can only be done by the careful study of what has gone before, and how improvement is to follow. Magnum Bonum may be quoted as a special gift of Providence—a natural seedling raised by Mr. Clarke, and, happily, though quite by accident, introduced to commerce, a circumstance that very rarely happens. My seedlings seem to have been considered for the nick of time, and for the "new species" seem to have been especially prepared; and in the very breath as I expressed myself at not seeing my way to any further improvement, so far as my particular hobby was concerned, up rises *S. Maglia*, *S. Jamesi*, &c., and to these, coupled with Mr. J. G. Baker's recommendation, I would earnestly turn our young hybridisers' attention.—ROBT. FENN, *Sulhampstead*.

FRUIT-FARMING AND JAM.

AT a moment when so much is being written and said as to presumed fabulous profits to be made by fruit-farming, gardeners, fruit-growers, and the readers of the *Journal of Horticulture* generally, are deeply interested that a subject so identified with their interests should be thoroughly ventilated. Who will question this when we see the leading politician of the age, resting from his labours of tree-felling at Hawarden, seizing the subject and rushing with it to the front with his usual vigour of advocacy? Lord Sudeley has embarked in planting an estate of 500 acres with fruit trees; others, we are told, are entering the lists, and a golden era of profit is assured as being in store for all who embark in similar enterprises. It is most important for the country that the subject should be truthfully dealt with, as there is no doubt that we are equal to growing sufficient fruit for all our wants, so also that far-seeing men are trying their best to meet them, though, as it seems to many, with but thin prospect of profit.

Few persons are aware that in the last season Herefordshire alone grew a crop of Apples, much of it choice dessert fruit, second to none in the world, and sufficient to have met the entire wants of London and other large cities, and yet but a small proportion of it left the farms on which produced. Thousands of tons of beautiful dessert and culinary fruit were converted into cider, and probably an almost equal quantity was allowed to rot under the trees, simply and entirely through the high rates exacted by the railways for its conveyance. The same, though to a more limited extent, occurred in other counties. It takes on an average a bushel of Apples to make a gallon of cider. So great was the quantity manufactured that casks sufficient for the storage could not be obtained. Sixpence per gallon at the farm door is a fair average value of the season's

product, which, without allowing anything for labour and casks, places the fruit value at 1s. per bushel.

Now, why was this fruit not sent to London? Simply because the railway rates for its carriage, together with the exactions of dealers and middlemen, have in previous seasons proved to the growers that loss rather than gain would result from so dealing with it. As a rule farmers are ready enough to go into the culture of vegetables and to multiply poultry with view to egg-production, and even to turn their attention to jam if any reasonable chance of profit exists. Such of them as have tried the two first-named panaceas have, to their cost, found that after sending the Cabbages and Cauliflowers to market, the lords of the railways generally gobbled up all the market proceeds. Jam, it is true, has yet to be tried. Wary ones, however, have well-grounded fears that the railway demand for carriage of the pots alone, preparatory to filling, would absorb a big slice of the yield from the product.

Sad indeed is the condition of the British farmer. On every hand Seylla or Charybdis seems before them. The cattle disease is stalking throughout the land, yet it is at such a moment Mr. Gladstone tells farmers to go and make jam. Surely this is a day for other and more friendly searching counsel. Might they not have been more wisely directed to railway reform? Under the existing pernicious system foreign farm products are conveyed at through rates from foreign far-off places to London and other large seats of consumption at greatly lower sums than the mileage rates he is charged, and thus the British farmer is driven out of the field. He does not object to foreign competition fairly conducted, neither would he lessen the abundance to his brethren in the towns. He does, however, feel the hardship and injustice of being shut out of his own markets by iniquitous preferences given to his foreign competitors.

It is not only on fruit and eggs that the railways are extortionate. The farmer is practically shut out from receiving dung from the cities and other fertilisers from a distance. Lime and salt, so beneficial on certain soils, are often weighted as if they were gold dust; and as to feeding stuffs for cattle, these are conveyed only as though intended for the farmers' table rather than as the material of meat product for mankind. It costs from 25s. to 30s. to move a ton of linseed cake from the great emporium of Liverpool into parts of Sussex, a service which in America would be done at less than one-third this cost. What chance has the British farmer to meet rent, crushing local rates, tithes, and Government taxes in the teeth of such handicapping? The thing is hopeless. After long years of fruitless remonstrance and striving against the wiles of railway executives, it is evident that nothing short of permanently establishing the Railway Commissioners with full powers to control the complained-of exactions will meet this great national evil. The existing race of railway managers, however able they may be in conducting costly parliamentary fights at Westminster, are, for the most part, of a school of the past. Men who have striven to discourage third-class travelling, now seen to be the most profitable business, and who, in such instances as that of the Brighton line, have done their utmost to drive this class into vehicles of a worse description than their old style of cattle trucks, are hardly the men to see these questions in a true light.

Fruit-growers are buoyed up with hope that the more extreme exactions of the railways will be cured when the Railway Commission is reconstituted and its powers extended so as to restrain the impolitic action of the Committee in obstructing everything that tends to agricultural helpfulness. The farmers in America are not so dealt with; they have secured for themselves justice and fair dealing. What would be said for a rate of 15d. for the carriage of a can of milk of thirty gallons 128 miles? Such is the charge on more than one railway in America.

It would seem impossible that the present rates for fruits, farming produce, and farming needs, such as manures, lime, and feeding stuffs, can be allowed to continue until the whole interest becomes involved in ruin. Throughout America the consumption of fruit is tenfold greater than with us, and mainly through the facilities and low rates of the railways. It is known that a practical fruit grower, the owner and planter of over sixty acres of the choicer kinds of Pears and Plums on his freehold farm at Slinfold in Sussex, and who has recently made several visits to America, has gathered such information as will greatly assist the Railway Commission on this important question. It is well that facts of the kind should be made public before an official tribunal which will deal with them impartially. Fruit-growers and farmers have borne and suffered long enough.—A FRUIT-GROWER.

GLAZED v. ORDINARY POTS.

I AM very happy to see this subject discussed in a contemporary, though with the exception of the veteran—I might say champion plant-grower of his day, Mr. Thomas Baines—none of the writers can

speak from personal experience of the matter; and as this is a subject that I consider well worthy of being discussed, and having, so far as I know, been the first to make use of glazed pots on an extensive scale and over a period of about twelve years, I would like to offer a few remarks on the subject.

It is now about forty years since I had the opportunity of admiring the beautiful examples of Pelargoniums that the late Mr. Beek of Isleworth used to compete successfully with at the shows in the Botanic Gardens in Regent's Park and elsewhere. These fine plants were grown in neat little slate tubs as close in the grain and as air and moisture proof almost as iron. The plants were beautifully healthy, and, so far as I am aware, Mr. Beek was the first to use these vessels in a systematic way. Cottagers without any reasoning or conviction in the matter, and most probably of necessity, have for generations grown window plants in old cracked teapots, &c. I once judged at a show where the first-prize Fern was presented in a cracked cast-iron porridge or potato pot! So there is no use in discussing who was the first to use glazed or iron vessels for plants, for perhaps it might have been Tubal Cain or some of his contemporaries, and so let them have what credit there is in it.

I do not know of anything connected with plant-growing in pots in which a revolution is more called for than in the description of pot so generally in use. The common flower pot is, to begin with, ugly, especially the English-made one. It is easily broken, and consequently expensive. When water that is soft and of the best description for plants is used it soon gets more ugly still, and dirty into the bargain. It takes very much labour to keep it clean by scrubbing and washing, and every time the process takes place the confervæ or slime is more or less washed on to the surface of the soil, and, in the case of perforated Orchid pots, among the crooks or chareoal and roots; and there it propagates itself and breeds corruption, to say nothing of the breakage of roots in the case of Orchids every time the scrubbing takes place. The roots of a plant must of necessity be subject to chills in it, because when the surface is moist—and it is nearly always so—evaporation is continually going on from its outer surface, and consequently also more water is required for a plant in such a pot.

The common notion that it, the common pot, is better for plants because it is porous and admits air to the roots is simply a popular delusion, like the old saw that "a green yule makes a fat kirkyard," and many others besides. I will not discuss the disadvantage or advantage of air getting at the roots beyond saying that if there were no aperture in a pot besides the usual one, the air would be forced up through it just to the extent that there might be a vacuum; yet this is the chief objection offered to house upon houseful of plants grown in glazed pots here—a knowing shake of the head, and the remark that "Air cannot so well get at the roots." A little of the elements of natural philosophy would dispel that and every other objection that can be urged against glazed pots.

I do not know whether they still exist, but some of the most flourishing Tree Ferns I ever saw were in the Kibble conservatory in the Botanic Gardens, Glasgow, grown in galvanised iron pots or round tubs. This was after I had adopted glazed pots, and it led me to procure the address of the maker of these tubs, and get estimates for various sizes of pots, but I did not feel warranted in going in for them, although not certain that over, say, twenty years the expense would not be in favour of galvanised iron as against common pots if there were no other objections to them. For one thing, the partridge-coloured glazed pot looks far more pleasing. Anyone who will invent a light imperishable—that is, unbreakable pot, at even double or treble the price of ordinary pots, would I am certain confer a benefit on horticulture.

All the stove plants here have for years been grown in glazed pots up to as large sizes as can be made; all the Palms, Ferns, and five-sixths of four large housefuls of Orchids, and there are pots in stock into which the other sixth will be put before many weeks. I have come to look on a common pot for all such plants with a "seunner," to use a scotticism, and will not be satisfied till all our house plants are in them. As to the comparative merits or health of the plants in the two kinds of pots, all I will say is that if I found any plant doing better in the ordinary pot I would not adopt a glazed one. This is not saying that the plants are better or even as good as some grown in common pots, but if they are worse than those of many other cultivators I would not give the dirty old pot the credit of it.

Now as to the expense. The glazed pots cost exactly a fourth more than the common pot, but I have now got them made so that they are much stronger and not so subject to breakage as the old pot, so firm and hard that they ring like a bell. In the end they will come cheaper, especially if the labour of washing and scrubbing is taken into account.

I have this season had glazed suspending pans for such plants as Nepenthes, Dendrobiums, &c.; and they look so much better and

cleaner than the common ware, the evaporation being of course greatly less. Forty of our largest Vandas and a good number of our largest Phalaenopses are in glazed pots, the rest of the latter being in teak baskets, but none in ordinary pots.

Speaking of Orchid pots with holes in their sides, I have come to regard them with disfavour, and am putting those of them in use aside as fast as it can be done. My reasons for so doing are, first the material used for potting is found to decay sooner in them than in close pots, simply because more exposed to the decomposing influence of the air; and secondly because they form a most convenient retreat for a cockroach, a slug, or a woodlouse; and thirdly, because they cost more.—D. THOMSON, *Drumlanrig Gardens*.

FERNS AND THEIR CULTIVATION.

[THE following is the substance of an instructive paper read by Mr. W. Birkenhead of Sale at a recent meeting of the Manchester Horticultural Mutual Improvement Society. For the figures representing the Ferns mentioned we are indebted to Messrs. W. & J. Birkenhead.]

THERE is at once apparent an important and striking difference between Ferns which do not flower and other plants which do; and we might even go further and say that the Fern has no true leaf, and yet its seeming leafiness constitutes most of its beauty. There is, however, this difference between a true leaf and a frond (as the leafy part of a Fern is called)—viz., that the frond produces the spores for reproduction of the species, while true leaves do not; and there is the further difference, that while the leaf of a tree expands in all directions at once, the Fern frond, which has been coiled up much like the spring of a watch, gradually unrolls from the base upward to the apex, the lower part gaining a considerable degree of rigidity while the upper portion is yet soft and still rolled up. So also the pinnae or side branches of the divided fronds partake of the same peculiarity, uncoiling from their junction with the rachis to their extremity. This curious fact leads me to advise people who grow Ferns in windows never to practise turning the plants round with the object of making them symmetrical; for the inevitable consequence is, that while the lower part of an expanding frond has become rigid and unyielding, the upper part, being soft and pliable, will turn towards the light, thus causing the frond to have a twisted or distorted appearance, and as the frond is still hardening this deformity becomes permanent, for turning the plant back to its former position will not bring the frond straight again. A similar difficulty is observed if a growing frond meets with an obstacle in its way and is bent in its growth, and there is no possibility of putting it afterwards into its proper form; hence it is very important to give specimen Ferns plenty of room for development while the fronds are growing, and they will give ample reward for this little attention by their elegance of form, providing, of course, that other necessary conditions of culture are attended to. Of these necessary conditions I will say a few words, and submit that the nearer our culture of Ferns approaches the state in which they flourish in their native habitats the greater will be the success which will attend our efforts, and the more lasting our satisfaction.

One of the first things likely to strike our attention in viewing Ferns in a wild state will be the extreme modesty displayed in their choice of a situation in which to grow, generally in those recesses where the leafy canopy of more gigantic growth shelters their delicate fronds from the fierce rays of the summer sun, and protects them from boisterous winds, or where similar protection is afforded by friendly rocks or sloping banks. These facts will suggest the necessity for providing them with shade from the sun and shelter from the winds; but here in regard to our imitation of Nature let me give a warning against making the gloom too deep, for Ferns cannot grow without light any more than other vegetation. They may not need it quite so intense as many other plants, but light they must have or die.

After giving much attention to the importance of light and its effect upon vegetation as illustrated by several extracts from Dr. Carpenter's works, Mr. Birkenhead continued as follows:—I have all the roofs of my houses washed and thoroughly cleansed by the middle of October, being persuaded that the more light we can get through the glass during winter the more vigorous will be our plants, and to a large extent this will apply in summer also, for even where Ferns are grown I object much to permanent shading where it can be avoided, preferring blinds which can be rolled up immediately the danger of scorching is past, and not allowing them to be put down until the heat of the rising sun makes it unsafe any longer to delay the shade. With this provision, allowing all the light possible to enter the structures, I find those Ferns nearest the glass are the sturdiest, most vigorous, and most shapely plants. Of course there are exceptions to the rule, among which may be mentioned the *Aspleniums*, many of which are benefited by rather more shade, and

the Filmy Ferns, such as *Todea*, *Hymenophyllum*, *Trichomanes*, &c., which require and must have a large amount of shade through the summer months, though even to them I give all the light possible during the dark months of winter.

Another important subject for consideration is the temperature and supply of air for different genera. The Filmy Ferns already mentioned must have an atmosphere heavily charged with moisture, and generally require a house, or frame, or propagating glass to themselves in which to be successfully cultivated, for a current of dry air passing over them for only a short time is often enough to destroy all their beauty. Abundance of moisture in the atmosphere, abundance of water at the roots, and abundant drainage, that the water may escape, are among the necessary requirements of this class of plants, together with rather deep shade in summer. The moisture should be generated by watering the paths and walls rather than by syringing the fronds, though this even is preferable to allowing them to be too dry.

The compost should be very open. It may be composed of peat, strong loam, and stone in equal parts, with or without charcoal, but all in lumps, the fine material being all sifted out and rejected, pieces as large as a walnut and larger being far better than finer compost, except for very small pots. I invariably find the best, healthiest, and strongest roots in the crevices between the pieces of compost, and when fine material has inadvertently been used the



Fig. 16.—*Todea pellucida*.

roots have travelled on the surface and gone down the outside of the pot instead of inside, where, of course, they could get no air. I believe air in the soil to be most necessary, and the quicker the water passes through the soil the quicker the air will follow, and the healthier the roots in that soil will be; and this will apply to nearly all Ferns providing the supply of water is sufficient.

A mistake is often made in the culture of Filmy Ferns by giving too much fire heat, which dries up the moisture from the atmosphere, and inevitably browns the foliage and often destroys it. For most of the species, such as those already mentioned, I would rather subject them to frost than to fire heat. Last winter the Filmies at our place were white with frost, for although there are pipes in the house the heat is never turned on unless the frost is likely to be intense. I have heard of many cases where *Todea superba* and others were covered with frost and ice for weeks together during the severe winters a few years ago, and no harm was done to them. Some of our own plants which were frozen during the same length of time came out of the ordeal without harm. The *Hymenophyllums* and, I believe, the *Todeas*, will grow far better in a close garden frame than in a house in which there is much artificial heat. I have now *Hymenophyllum Wilsoni* and *H. tunbridgense* in a cold frame the perfection of beauty and health, and they have been in that frame since the spring of last year. I hope the knowledge of these facts may become general, so that many persons may enjoy the beauty of foliage, such as that of *Todea superba*, who have hitherto been deterred from attempting the cultivation of Filmy Ferns through fear of disappointment. I must, however, remark that some of the rare and more delicate species of Filmy Ferns, such as clothe the stems of other Ferns and trees in warmer climes, must be provided with artificial heat, but provision must be made for retaining moisture in the atmosphere they grow in, which will perhaps be best accom-

plished by the use of an extra frame or bellglass, so that the dry heat of the pipes or flue cannot possibly come in contact with the exceedingly delicate foliage of such kinds as *Hymenophyllum flexuosum*, *caudiculatum*, and *ciliatum*, *Trichomanes angustatum*, *T. trichodeum*, *T. Luschianum*, *T. pyxidiferum*, and others from tropical countries.

[An example of a beautiful Filmy Fern, *Todea pellucida*, is shown in fig. 16. It is of more slender habit, with looser fronds than *T. superba*, but one of the most elegant of the genus.]

Next to the Filmies in their love of shade and atmospheric moisture come the Aspleniums, some of the Arthropteris, Dictyogramma, Meniscium, Scolopendriums, and most of the Selaginellas, which revel in conditions approaching those in which the Filmies thrive, though being benefited by a little more light and a somewhat greater circulation of air.

Passing from these shade-loving Ferns to the opposite extreme we come to the Pellæas. [Fig. 17 shows a plant of *Pellæa ornithopus brachyptera*, a graceful little Fern] *Cheilanthes*, *Gymnogrammas*,



Fig. 17.—*Pellæa ornithopus brachyptera*.

Ceterach, *Nothochlænas*, and *Woodsias*, Ferns which could hardly exist in the close atmosphere of the *Todea* house, but which, on the other hand, revel in abundance of light and an almost constant circulation of air among their foliage, hence the best situation for such plants is very near the glass on a shelf; but as there are exceptions to most rules, and so also in these general remarks, I may mention *Asplenium Ruta-muraria* and *Trichomanes* as plants fitted for the same situation as the Pellæas and *Woodsias*, remembering, of course, that while these are enumerated with the *Gymnogrammas* as plants requiring extra light and circulation of air, there must still be kept in view the different degrees of heat essential to the different subjects; for while the *Woodsias* will do in a cold house into which the frost may enter, the Pellæas and some *Cheilanthes*, also some of the *Gymnogrammas*, such as *triangularis* and *trifoliata*, in a cool house from which the frost is just excluded, *Gymnogrammas* *Lauchiana*, *chrysophylla*, *peruviana*, &c., must have a stove temperature, still plenty of light near the glass, and a circulation of air created by the hot-water pipes or flue, the driest part of the stove being the best position for the gold and silver species, especially during winter.

Intermediate between the two extreme classes already mentioned—i.e., those requiring shade and atmospheric moisture and those doing better in light and free circulation of air, we have the majority of the members of the family, of which it must suffice to mention a few of the leading genera as representative of hundreds of species and varieties fitted to embellish the stove, the warm greenhouse, the cool greenhouse, the dwelling-room, and the open-air rock garden where shelter is attainable. Such, then, are the species and varieties of the genera *Adiantum*, *Alsophila*, *Anapeltis*, *Athyrium*, *Blechnum*, *Calopteris*, *Cibotium*, *Cyathea*, *Cyrtomium*, *Cystopteris*, *Davallia*, *Dicksonia*, *Diplazium*, *Doodia*, *Gleichenia*, *Lastrea* [see fig. 18 for a good representation of *Lastrea Richardsii multifida*, a useful compact-growing crested Fern], *Leucostegia*, *Lomaria*, *Nephrodium*, *Nephrolepis*, *Osmunda*, *Platyloma*, *Polypodium*, *Polystichum*, *Pteris*, &c., many of which are much more easy to manage than some of the first-mentioned families, and will generally do with a compost of equal parts good loam, leaf soil, and cinders, to which one-half part sand and one-half of charcoal would be a good addition. In the absence of leaf soil good peat may be used for some species, but by no means for *Adiantums*. I am not so much in favour of that generally admired ingredient as some writers seem to be, except for such strong-growing semi-aquatics as the *Osmundas* and *Lastrea thelypteris* (commonly called the Marsh Fern), and a few others.

(To be continued.)

GERMINATION OF PEAS.—As a proof of the mild season and the heat in the ground, Laxton's William I. Pea, sown on January 12th, was plainly showing through the surface on January 31st; thus in

nineteen days from the time of sowing they were showing above ground. I ought to state the seed was sown on a south border that had the protection of a wall some 8 feet in height, the border having been bastard-trenched a few days previous; thus the ground was in first-rate condition for the seed, which was sown as received from the seedsman. The sample was good, and I thought too much dried, but my fears were groundless. All vegetation appears to have made great strides during the past week.—A. J. SANDERS.

VINES BLEEDING.

I AM afraid that if I were to allow "Non-Believer" the cutting and wounding of my Vines as he proposes, it would be done with "malice aforethought" as far as the Vines are concerned; and as they are accustomed to be ministered to only by loving hands, they might find out the difference. On looking over what I have written I cannot find anything which can be construed in the way your correspondent puts it, but if others think there are passages which can be so interpreted I am glad he has called attention to them. What I have endeavoured to say is that the bleeding when it takes place is little more than an emission of water, and that the stores of food are not materially exhausted thereby. I have had some Vines bleed as I thought very seriously, while others of the same variety, apparently in the same state of vigorous health and treated exactly the same, have not bled; and yet after growth had started those which had bled profusely flourished as well as those which had not bled at all. I cannot give a reason why some should bleed and others should not, neither can I say why bleeding sometimes comes on, ceases suddenly, and then comes on again. I have thought sometimes the weather or the temperature made the difference, but on following up any clue which I thought I had got hold of I have not been able to go far without experiencing a check, and there is still much that is mysterious about the matter.

The sentence which your correspondent alludes to is probably the following, and is from the Journal of November 22nd, at page 438:—"The liquid which comes from a Vine stem when it is pruned too late in the season is, I believe, very little, if anything, more than water; it is perfectly tasteless, and beyond keeping the wound open probably does no harm." I thought it was sufficiently plain in this sentence that Vines can be pruned too late, and also that cutting and wounding was an evil—a necessary one it may be—not to be repeated for mere amusement.

Another sentence which bears on the subject is from the Journal of December 20th, at page 529, where, after citing an extract from Prantl's "Text Book of Botany," describing the movements of water in plants, I say that "Prantl's theory agrees with what has been guessed at by several practical gardeners, and recorded within the last few years in this Journal—namely, that little or no harm happens from the bleeding of a healthy Vine, as there is little or nothing besides water exuded; and there is, or ought to be, always an ample supply at the command of the



Fig. 18.—*Lastrea Richardsii multifida*.

plant to replace that which is so lost." Here I thought it was sufficiently clear that I was giving other people's opinions and theories, but if I am not clear I wish now to repeat what I have often said in this Journal, that late pruning is decidedly injurious to any plant. I have always made a practice of completing the pruning, both indoors and out, as far as I could, of all fruit-bearing plants before Christmas, including even the Peach and the Fig, for all plants, whether they bleed visibly or not, are decidedly injured by amputations performed just before growth commences.

"Dugald's" letter on "Vine Economy" is interesting, but not convincing. Supposing we grant all he states to be correct, and some of it I am willing to grant, there yet remains the fact that Vines start making leaf-growth first, and other plants, as far as I know, start root-growth

either before or simultaneously with top-growth. It would be interesting to know, as far as can be discovered by the microscope, what proportion of stored food the Vine has in winter compared with other fruit-bearing plants—say, the Plum for instance, which starts root-growth soon after, or even before Christmas, in the southern counties when the weather is not severe.—WM. TAYLOR.

PEAS IN 1883.

It is seldom we experience so good and prolonged a Pea season as that of 1883. We commenced to pick in quantity about the middle of May, and were never without Peas till nearly the end of November. It is true we took extra pains with both the earliest and latest crops, the seed for the former being sown in boxes and the seedlings transplanted and carefully sheltered from cold winds and frosts, while the latest sowings were made in the highest situated quarter of the garden where the earliest frosts are least destructive, but they well repaid for the trouble.

For the very earliest pickings American Wonder is the best, being well adapted for either frames or for sowing or planting at the base of sunny walls. The quality of this extra dwarf wrinkled Marrow is first-class, and each season I have either this or the still more dwarf Minimum. Complaints have been made of the quality of the earliest round-seeded Peas grown to succeed them. I hope in time we may dispense with any round-seeded varieties, but up till now no wrinkled Marrow I have tried is quite early enough. Laxton's Earliest of All was again the best early variety, and was closely followed by Veitch's Extra Early, this white round-seeded selection being the more robust of the two. William I. was fully a week later than the last-mentioned, and as usual proved very serviceable. A large-seeded wrinkled Marrow received from Mr. E. Tredgett, Cambridge, formed a good succession to William I., and apparently possesses a stronger constitution than most of the earliest section. Magnet, a dwarf second early variety, proved useless here, but might suit gardens where space is limited and stakes scarce.

Telephone, which I prefer to Telegraph on account of its superior quality, is still the best second early Pea; and as a substitute for the former in smaller gardens I would recommend Stratagem and Pride of the Market, also of moderate height and very sturdy, being, like Telegraph, of a better colour but less sweet. To form a succession to Telephone we still prefer Criterion, while those preferring Peas of the Champion of England class to the better-coloured Ne Plus Ultra type, in which Criterion must be included, should grow Huntingdonian. Both are heavy croppers, fill their pods well, the peas being of the best quality. Dr. McLean is good for a small garden, and so also are Marvel and Gladiator. The latter was first distributed last season, and I should be glad of other growers' experience with it. With me it cropped heavily, and the long pods filled well, but the quality was poor. Evolution branched remarkably, was very prolific, and the long handsome pods were closely filled with not oversweet peas. Another novelty, Sturdy (Veitch), much resembles it in habit, but is much later, and the pods are smaller, but are closely filled with sweet peas. A third branching variety was received from Messrs. Sutton & Sons for trial, and this when distributed will be found to be one of the best white wrinkled varieties we have. These branching varieties, among which Walker's Perpetual must be included, are great acquisitions, especially for small gardens. The last-mentioned will in our case take the place of Veitch's Perfection, which it resembles in some respects.

I do not consider Culverwell's Giant Marrow particularly valuable, as, unless it receives special treatment, the pods are not very large, and I find it much subject to mildew. The pods fill well, and the peas are large and sweet. As an exhibition variety I consider the better-coloured Evolution superior to it, and I have observed that judges are paying more attention to colour than of old. Reading Giant is a good main-crop sort; the habit, colour, and size of pod and peas as well as the quality being alike satisfactory. Ne Plus Ultra is too well known to need any recommendation from me, as it is undoubtedly the best late tall sort we have. Suttons' Latest of All was again remarkably good for late crops and does not require tall stakes. Doubtless there are other varieties besides those enumerated above which are worth growing, but I am not acquainted with them.—W. IGGULDEN.

ROSES NIPHETOS AND SAFRANO—SCENTLESS FLOWERS.

I AM somewhat surprised that the Tea Rose Niphetos should be placed in the foremost rank, and that it is considered by some as likely to become at no distant date the Rose of the future for winter forcing. What merits does it possess when forced inside? Does it bloom with greater freedom than all other varieties? I cannot see any qualities to justify its being accorded such prominence, unless the pure white blooms are alone the merit by which it has gained such a high position in popular estimation. It is by no means the most prolific-blooming Rose that can be grown

when forced during the winter. The old apricot-coloured Safrano must stand far ahead of it for winter forcing; in fact, it is the most continuous flowering Rose that can be grown for flowering either winter or summer either in a pot or planted out, but it is for the former that it is most valuable. During that period it will produce double the buds, or nearly so, that Niphetos will; but only in the bud state is it any use, for it does not possess sufficient petals for the exhibition table. Probably on this account Niphetos is placed before it. But for winter forcing varieties cannot be judged by the exhibitor's estimate or standard, for even Niphetos, which during the summer attains such size and beauty, is equal only during winter in the size of its buds to Safrano. The last is, I will readily admit, a disappointing Rose when fully expanded, and but little superior to those of the common Briar, except that it is larger; but in the bud state it is a gem, and possesses the advantage that few other Roses have of developing after being cut and placed in water. Even if cut in a small state it will do this.

Again, the buds of Safrano possess a most delicious fragrance, while the popular Niphetos possesses only a very light fragrance that is almost imperceptible. Why a scentless Rose should be elevated to the foremost position for winter I cannot imagine. I give preference to several varieties before it. If it possessed the fragrance of Safrano it would be accorded the second position, for it surpasses that variety only in the colour of its flowers. I think these scentless Roses, whether Teas or Hybrid Perpetuals, cannot be too strongly condemned, and yet they are becoming more general, and many of them for form and beauty rank high amongst exhibition varieties. If we look at the gigantic blooms of Capitaine Christy, Baronne de Rothschild, Mabel Morrison, Comtesse d'Oxford, Magna Charta, and many others, they are no more beautiful or desirable than Camellias, which are more readily produced during the winter and spring. The latter possess qualities that should place them in higher estimation than scentless Roses, but such is not the case. I most decidedly prefer to large scentless blooms, however faultless their form may be, buds of the old Cabbage, common Moss, or China Roses, all of which would be ignored by the lover of Roses for exhibition only.—W. BARDNEY.

SPECIAL SOCIETIES.

IN reply to Mr. Douglas on page 88 I do not feel at liberty to publicly name Auricula growers who sell their seed and plants, as some of them are not independent amateurs. Florists have generally on hand a stock of good, bad, and indifferent plants, and they very seldom object to dispose of these to the highest bidder—trading upon their reputation to "turn an honest penny." I have, however, no objection to give the name of one notable "florist" and Auricula grower to the Editor privately, and I leave it to his discretion to give it to Mr. Douglas in the same way, who sells his seeds or seedlings regularly. Looking at a large stock of these one day I asked the nurseryman if they were florists' varieties, and his reply was, "Well, we buy all so-and-so's spare stock and pay a good price for them, and if they are not florists' varieties they ought to be." Does Mr. Douglas mean to deny that florists do not "trade in their specialities?" I have a list of named "florists'" flowers before me now, compiled by one who is intimately acquainted with all the Auricula growers in the kingdom, who reports their doings, exhibitions, &c., very frequently; and he most assuredly does not offer his plants or seeds for nothing, nor does he get them for nothing from those who cater for him. No one finds fault with florists having an "eye to business," only I wanted to show that the "old fogies" are not exactly the guileless philanthropists your correspondent would have us believe.—BORDER FLOWER.

WONDERFUL are Mr. Douglas's discoveries! His latest, perhaps his most wonderful, that the National Rose Society must drop its title of National because none but members can exhibit at its shows. He had better write to the National Club or the National Liberal Club to say that they must change their title because none but members can use their privileges. National simply means general, public; and all it implies is that anyone may belong to an institution using the name on certain conditions. To the National Rose Society, hitherto by payment of an entrance fee of 5s., now by simply doubling that and thus becoming members and entitled to other advantages besides that of being able to exhibit.—D.

I REALLY had no intention of hurting the feelings of Mr. Rudd or Miss Woodhead either, and I am quite astonished that "D., Deal," accuses me of doing so. I stated plainly that there was some mistake which "D., Deal," can doubtless set right. It was stated at the Show in question that Mr. Rudd had offered 1000 plants of Auriculas at a price. There is no other amateur known to me that could do so. As it seems "D., Deal," was the first to introduce this personal matter, I look to him to say who the amateur was.—J. DOUGLAS.

NOTES FROM A SUBURBAN GARDEN.

Lasiandra macrantha floribunda.—Those who grow this charming Melastomad in the form of small plants in pots only, can form no idea of the size it will attain when planted out in generous soil and encouraged to grow freely in a somewhat moist and intermediate temperature—a fernery for instance. A very fine example, affording an illustration of the preceding remarks, has flourished and flowered

vigorously for many years in a large fernery under my charge. Its principal shoots were trained up one of the supports of the roof, thence along one of the cross beams; and now the drooping mass of lateral growth laden with its lovely purple blooms hang gracefully down from the beam, thus affording in contrast with the surrounding Ferns a most pleasing picture, especially as this charming plant is almost constantly in flower. A great point in its favour, too, is its comparative immunity from the ravages of insects, the only insect we have found to infest it being mealy bug, and this may be very easily kept in check, or, what is more preferable, exterminated by paying diligent attention to the matter. Such a beautiful climber deserves to be more generally grown than it now is.

Justicia flavicoma.—This useful old inhabitant of our plant stoves is not grown so extensively as it deserves to be. Its bright yellow flowers are very cheerful, and useful, too, for cutting during the dull period of the year. Healthy well-grown plants will be found very effective for the decoration of rooms and the plant stoves at all times, but more especially during winter when flowering plants are scarce. Cuttings taken in spring, inserted in heat and grown on during the summer, will make useful plants by October, when they will commence flowering and continue to do so for a long time.

Cibotium Schiedei.—A truly noble Fern is this when well grown, and plenty of space is at command to enable it to fully develop its large elegant fronds. To enable it to do so it requires a large structure, and if possible to be planted out. To see it to the best advantage, too, the fernery should have its interior arranged in a series of rock banks and beds. These should be constructed or formed in as tasteful and informal a manner as possible. By a judicious employment of large boulder stones in certain portions of the house, according to the effect required, suitable positions for these noble Ferns may be found—that is, if intelligently done. It is impossible in these brief notes to enter fully into the arrangement and design of such a structure as is best adapted to the growth and development of Ferns. We may, however, state that if this species be given a commanding position in such a structure, and can be planted out, it will speedily become an object of admiration.

Onions.—So many varieties, with their endless “improved” forms, are to be found in seedsmen’s catalogues that it is a task of no small difficulty as well as a source of bewilderment to beginners in gardening to select the really best varieties capable of producing good bulbs in quantity and quality. After a careful trial last season of several varieties we found such as James’ Long-keeping a first-rate Onion for keeping, Bedfordshire Champion and Sutton’s Improved Reading (this is a superior form of the latter variety) to be the best varieties for main crop. As a small Onion useful for garnishing and pickling and turning in early for use we recommend The Queen, one of the Silver-skin type. The Paris Silver-skin is a useful variety for drawing in a young state for soups. Giant Lemon Rocca as a winter sort is doing well with us.

Strawberry Triomphe de Paris.—Have any readers of the Journal grown this variety for forcing? If so, has it been found a good variety for that purpose?—SUBURBANIST.



THE Committee of the KINGSTON CHRYSANTHEMUM SOCIETY met on Wednesday the 30th ult., and decided to offer another 25-guinea challenge cup, with money prizes of £5, £4, £3, and £2 to go with it. There are also prizes of 80s., 40s., 30s., and 20s. for twenty-four incurved cut blooms, and likewise the same amounts in a corresponding class for Japanese blooms.

— EAST LOTHIAN STOCKS.—Mr. Thomson writes to say that Mr. Muir is wrong in crediting him with bringing out these Stocks, and that it was Mr. James Campbell (now in a situation near Melrose) when gardener at Traprain who selected them and grew them for years, in common with several other East Lothian gardeners, before Mr. Thomson grew them, and who claims no more credit for them than having written in their praise after having grown them extensively, and desires to accord honour to whom honour is due.

— THE schedule of the NEWCASTLE-UPON-TYNE HORTICULTURAL AND BOTANICAL SOCIETY announces that the spring Exhibition will be held in the Town Hall and Corn Exchange on April 23rd and 24th,

when £138 will be offered in prizes for bulbs and miscellaneous forced plants and flowers. The summer Exhibition is fixed for July 23rd, 24th, and 25th, the Leazes Park being the site selected. A total of £302 will be offered in prize money for plants, flowers, and fruits, some of the individual prizes being of considerable amount.

— ONLY about 57,000 barrels of AMERICAN APPLES have been exported to Great Britain this season, of which nearly 70 per cent. has been shipped from New York, 13 per cent. from Boston, and 17 per cent. from Montreal. Nearly 300,000 barrels were shipped in 1882. This season Liverpool has taken the largest proportion, Glasgow next, and then London and other smaller ports. In 1882 Liverpool imported nearly 200,000 barrels of American Apples.

— MR. WILLIAM GREGORY, late nurseryman of Cirencester, died at Harlesden, Middlesex, on the 29th January, aged eighty-five. Mr. Gregory succeeded his father, who was founder of that business now so energetically carried on by his kinsmen, Messrs. John Jefferies & Sons of Cirencester. Forty years ago Mr. Gregory took an active part in all the leading horticultural movements of the period, and was one of the founders of the Gardeners’ Royal Benevolent Institution.

— THE SUTTON AMATEUR ROSE SOCIETY’S schedule, which is just issued, gives the date of the Show for the present year as July 4th, the site selected being the Sutton Public Hall. The total amount of prize money offered is £82 in twenty-four classes, a number of special prizes being contributed by supporters of this energetic Society. The National Rose Society’s silver medal will be given for the best Tea and Noisette, and the bronze medal of the best Rose in certain classes. A ladies’ challenge cup is offered for six blooms, single trusses, the cup to be held by the winner for the year, and if won by the same member in two consecutive years it becomes his property. This Society appears to be extremely well supported, for although only the third year of its existence, they have the substantial balance of £41 10s. 3d. in their favour.

— AT the recent meeting of the ROYAL BOTANIC SOCIETY, Regent’s Park, a further collection of tropical fruits, seeds, &c., collected by Lady Brassey during her recent voyage to the West Indies, was placed upon the table and explained to the Fellows present by Professor Bentley, Dr. Prior, and the Secretary, Mr. Sowerby.

— “R. I. L.” writes that “IRIS STYLOSA, as ‘M. S.’ suggests should be grown in all gardens. During the mild weather of the past winter it has constantly been flowering out of doors, but that cannot happen with much advantage during the most usual weather of its season of flowering, and therefore, as in the Cambridge Botanic Garden, it should be grown in pots for the greenhouse. It submits well to pot culture, and the most lovely flowers have almost constantly been in perfection for a number of weeks. Who has seen Iris Robinsoniana in flower? Surely that comparison has been made from a figure.”

— A CORRESPONDENT regards GARRYA ELLIPTICA “as one of the most valuable of hardy evergreen shrubs. Though it was injured by the late severe winters, it has now quite recovered its appearance, and the male catkins, which give such a decided individuality, are now in perfection. It is native of Mexico and California, and Loudon says that in America it reaches a height of 3 to 4 feet; in Britain, however, it attains to 8 or 10 feet. The female plant is extremely uncommon, though by layers and cuttings it should easily be propagated. The male, fortunately, is the handsomest, and we have pendulous necklace-like catkins before us nearly 7 inches long. These are extremely graceful.”

— A CORRESPONDENT, “H. T. H.,” desires to know if any reader of the Journal can tell him where he can buy a VINEGAR PLANT. He has fifty gallons of cider that would make excellent vinegar if he could obtain the plant in question.

— MR. J. SAUNDERSON, The Gardens, Bodnant Hall, Eglwysbach, Denbighshire, writes:—“Having read your correspondent, C. H. Stephens’ article on POINSETTIA CULTIVATION, I doubt whether such treatment would answer in this part, or even anywhere far north of London. We find them succeed best in an intermediate temperature. I have forwarded you a sample head, cut from a plant 30 inches high with leaves to the pot rim. We have them from 10 inches to 3 feet high.” Accompanying this note was a head of Poinsettia bracts and flowers 18 inches in diameter, with six branches and individual bracts 10 inches long, 2½ inches broad, and of extremely rich colour. Such plants as Mr. Saunderson grows must be extremely showy.

— ONE of the best of a fine genus is *APHELANDRA ROEZHII*, and so useful that it deserves mention, though well known, probably, as one of the best of stove plants. There are few plants which flower so well as small specimens, and it can be cut back and flowered so readily upon short branches that it is of great value now that decorative plants of small size are in demand. At Gunnersbury we remember having seen some very fine specimens. It is easily raised from seeds, and is grown also from cuttings. Like the other species, it delights in rich soil with good heat and moisture. As may be remembered, this species is characterised by broad, silvery, deflexed leaves, above which stand erect the close spikes of brilliant orange-crimson flowers.

— CAULIFLOWERS imported in casks from Germany have been recently on sale in New York city. Cabbages have become a common import there, and are absolutely sold cheaper coming from Germany than from Long Island. Fresh Cauliflowers will be imported in May and sold at good profits.

— It is announced that PROFESSOR FLOWER has been appointed to the post of Superintendent of the Natural History Department of the British Museum, rendered vacant by the resignation of Sir Richard Owen recently noted.

— DISASTROUS EFFECTS OF THE LATE GALES.—It is stated that not less than 20,000 trees have been blown down on the Countess of Stair's estate, near Ayr; 100,000 in the one case and 20,000 in the other on the Marquis of Ailsa's estates at Mochrum Hill and Culzean Castle. We are also informed that 150,000 trees have been blown down in the Duke of Buccleuch's forests on the Drumlanrig estate.

— AN American paper states that "A new Mignonette, *RESEDA ODORATA MACHÉ*, is hailed with pleasure by those who understand the usefulness of this flower and its standard popularity. It is entirely distinct from all other varieties known. Its foliage is bushy and very dark green. Its habit is dwarf; it is very vigorous, throwing up numerous flower stalks, terminated by massive spikes of deliciously scented red flowers."

— MISS ELEANOR A. ORMEROD has issued an interesting little work, entitled "A GUIDE TO METHODS OF INSECT LIFE" (London: Simpkin, Marshall & Co.). It comprises ten lectures, which were written at the request of the Institute of Agriculture as a compendium of information on the habits and means of destroying insects injurious to farm and garden crops. One hundred and sixty-seven pages are devoted to the subject, which is fully treated and abundantly illustrated with representations of all the principal pests, the several stages being also shown in most cases. A useful glossary of entomological terms and a good index render the work still more serviceable.

— "W. J. H." writes in reference to PEDIGREE ROSES:—"In your number of January 24th, 'D., Deal,' in his review of horticulture, speaking of the Rose, admits the success of Mr. Bennett's hybridising, but objects to the term 'pedigree' as applied to them. If he has not already given his reasons, may I ask why? If Mr. Bennett carefully crosses his Roses and keeps a correct memorandum of the same, why should he not so call them if he thinks fit? In regard to Her Majesty, do I understand that he doubts the pedigree, or that he is not prepared to admit that it is any improvement on the older varieties? If the former, why? If the latter, I consider that according to the exhibition test of the National Rose Society it has proved itself a decided advance on any other Rose. At the Society's Exhibition in London it was awarded their gold medal for the best seedling, and the first prize for the best twelve blooms in the Show both there and at their Sheffield meeting; and although the Roses awarded the second prize were decidedly good, there was, according to the opinion of more than one present, room for several between them."

— THE *St. James's Gazette* recently published an interesting article upon NARCISSI CULTURE in the SCILLY ISLANDS, from which we extract the following:—"Several years ago it occurred to the late Mr. Augustus Smith—whose intelligent interest in horticulture is well known, and has left a permanent monument of itself in the Abbey Gardens at Tresco—to test the capacity of the island soil for producing the Narcissus. The plant was introduced more or less widely—scarcely with much hope of profit at first. It is probably not more than six years ago when the first consignments of Narcissi from the Cassiterides found their way to Covent Garden. Now some of the large growers at

Scilly have as many as 200,000 bulbs, each supporting on a long stem the beautiful flower so much valued for house and church decoration. What this may mean in the way of prosperity can be roughly estimated when we learn that the Narcissus has sold for 1s. 6d. per bunch of a dozen in the closing days of December. Also, it is to be noted that the bulbs multiply rapidly; they double, treble, and even at times quintuple in one year. As a climax to all this good fortune, there is no reason to suppose that Scilly need fear competition of a dangerous sort. The Narcissus farm at Rocky Hill is well worth a visit. The land devoted to the flower is fenced with deep, thick, dark green hedges of *Escallonia*, all trimly cut, which form also a pleasant contrast to the bright tender green of the Narcissus leaf. There the plant grows luxuriantly in long rows of beds, and where the shelter is most complete the stalks are sometimes nearly a yard in length. Nothing is much pleasanter for those who care for flower-gathering than to spend an hour or two plucking the fresh crisp stalks. They are set side by side in deep round gathering-baskets. Thus collected, they are conveyed to the farmhouse, sorted and tied in bunches. A dozen stalks form a bunch, and some little experience is necessary to attain perfection in the art of tying them up satisfactorily. Fifty or sixty or seventy bunches make up each basket, which is then ready for forwarding to Covent Garden."

— PROVINCIAL correspondents writing from Devonshire and Cornwall in reference to the MILDNESS OF THE WINTER, state that Strawberries have been picked both by hedgerow and in gardens, while Blackberry bushes with both fruit and blossom thereon may be seen. The cottage gardens, many of them, are already bright with early spring flowers. The following wild plants have also been seen in bloom:—*Primula vulgaris*, *Stellaria media*, *Ranunculus bulbosus*, *Ranunculus Ficaria*, *Rubus fruticosus*, *Fragaria vesca*, *Potentilla fragariastrum*, *Lychnis diurna*, *Bellis perennis*, *Lamium purpureum*, and *Vicia sepium*.

— THE fifth annual general meeting of the LIVERPOOL HORTICULTURAL ASSOCIATION was held in the Free Library recently, Mr. Thomas White, Vice-Chairman, presiding. The reading of the report of the work of the past year—the most successful of the Association—elicited from the members warm approval, and satisfaction was expressed with the Committee and officers for their services. The election of Patrons, Honorary President, and Vice-Presidents was then proceeded with. His Worship, the Mayor (Mr. Thomas Holder) was unanimously elected Honorary President, Mr. Fletcher Rogers being re-elected Honorary Treasurer. Mr. William Minshall, Sub-Treasurer, and Mr. Joseph Gore, Secretary, were unanimously re-elected. A vote of thanks was given to the retiring officers and Committee for their past services, their unremitting energy having placed the Association in its present favourable position. The rules of the Society, having been revised by a Sub-Committee composed of Messrs. A. R. Cox, R. G. Waterman, and E. Bridge, were passed with slight alterations, two Auditors having been appointed. Several members expressed a favourable opinion about the forming of a reserve fund, and it was agreed that the Committee take this matter into their consideration at an early meeting. A vote of thanks to Mr. T. White for presiding terminated the proceedings.

— G. T. GWILLIAM, Esq., Fellow of the Royal Meteorological Society, refers in the *Daily News* as follows to the MILD WEATHER:—"The mean temperature of the air here last month was 44°, being 5·6° above the average. It was the warmest January since 1834, and the only instances recorded of a higher temperature in this month were in January, 1796, mean temperature 45·3°; January, 1834, mean temperature 44·4°. The continuous mild weather has been very remarkable. Since December 8th, 1883, the 'shade temperature' here has not once fallen below 32°. During the same period of 1879–80 it fell below 32° on forty nights."

— DURING the recent gale one of the most noted trees in Sherwood Forest fell a prey to the wind's violence. It was known as the "MAJOR OAK," and was situated near Edwinstowe. The tree, a grand old Oak, had a girth of 29 feet, and "the circumference of the outspread tree at the utmost extent of its branches was 240 feet." It was at one time called the Cockspen Tree, because its interior was used formerly as a hen-roost. Latterly many pic-nic parties have gathered in the hollowed-out trunk, and in a history of Worksop the following reference is made to the tree:—"Seven persons at once have been known to partake a meal in it; while no doubt with a little contrivance it might have accommodated more." Notwithstanding its internal

decay, the old Oak (which had existed for more than seven centuries) was one of the noblest trees in the kingdom.

— THE age and size of large trees is commonly over-estimated. The largest known Red-wood of California is 366 feet high, and all higher measurements which have been given are erroneous or guessed at. They are probably not nearly so old as usually represented.

— THE remarkable Aroid *GODWINIA GIGAS* is now fast developing an immense spathe in Mr. William Bull's nurseries, King's Road, Chelsea. This extremely rare plant was discovered by the late Dr. Seemann when collecting for Mr. Bull on the Chontale mountains, Nicaragua. This specimen flowered once before in this country, and the spathe then measured 1 foot 11 inches in length, and 1 foot 8 inches in width. The spathe in its present state of development is not so large as that, being 18 inches long, and 9 or 10 inches broad when open. It is of a peculiar claret-purple colour, except at the base, where it is yellowish, the spadix being short and of a dark hue. The large solitary leaf was 9 or 10 feet high last summer, and from the lower portion of the remaining leafstalk is produced the spathe, which is borne upon a stem about a foot long, curiously spotted and striped with grey on a greenish ground. It is strange that after the lapse of ten years the same plant should again produce flowers.

— MR. J. H. KRELAGE of Haarlem has sent us a paper by Dr. Wakkers, the object of which is to show the impossibility of communicating the *PHYLLOXERA* by the agency of bulbs and tubers. In our opinion there is not the remotest danger of anything of the kind occurring, nor is there any probability of the pest being introduced by other plants than the Vine, unless these are actually grown in vineyards, and in that case it is possible that the eggs of insects might be conveyed in the soil. No satisfactory proof that we are aware of has been furnished either by experiments in this or any other country that the much-dreaded insect will live on any other roots than those of the Vine. We have heard fears expressed that the insect may be introduced with Lilacs for forcing, but the best Lilacs are grown far distant from the phylloxera districts, and, moreover, we are told on good authority that they are grown in pots; but at any rate there is no phylloxera in the bulb farms of Holland, and obviously there can be absolutely no danger of introducing the pest from where it does not exist. We are, however, informed that it is the custom in some continental nurseries to grow the Lilacs and Roses in rows between the rows of Vines, and it is very desirable that such a practice should be discouraged, as the danger of introducing the eggs on the roots in those cases is a contingency not to be overlooked.

VEGETABLES FOR HEAVY SOILS.

NOTHING influences the growth and the quality of vegetables more than the nature of the soil in which they are grown. Some varieties are more easily influenced in this respect than others; this being the case, a knowledge of the varieties which succeed best on light or heavy soils is all-important to those who have to cultivate them. I propose to name a few varieties which we have found can always be depended upon to give good crops on our heavy soil.

Potatoes—first crop, Rivers' or Myatt's Ashleaf; second crop, Covent Garden Perfection. This I consider the perfection of a Potato, and it is always good with us. Late crop—Champion and Reading Hero, the latter is the best. Peas.—First crop, William I; second crop, Telephone; on this variety I chiefly depend for the summer supply, and it never fails to give peas of excellent quality and plenty of them. Late crops—none does so well here as Ne Plus Ultra. These are all tall varieties, which I always grow in preference to the dwarf ones, but in small gardens where space and sticks are an object, American Wonder, Stratagem, and Omega should be substituted for the above, and will not fail to produce excellent crops.

There is no need to particularise any variety of Cauliflower or Broccoli, as they all delight in soil of a heavy nature. Cabbage—Carters' Early Heartwell gives the most satisfactory results. Chou de Burghley I hardly dare venture an opinion upon yet; mine are rough this season, and the amount of cooking required to make them tender takes out all the colour and flavour, but I intend giving it another trial in hopes of better results. Of Brussels Sprouts I have not grown any variety to please me yet; but I saw last year in the kitchen gardens at Longleat a quarter the counterpart of which I wished I had at home. The variety was Paragon, obtained from Messrs. Veitch & Sons, and which I intend trying myself this year.

Carrots are difficult to grow satisfactorily on heavy soils. The Short Horn varieties do best, and James's Intermediate is good for

winter use, but it should not be sown until the first week in May, or half the crop will split and be spoiled.

Celery, with the exception of a few rows of White, for early use, from a stock of my own, I grow Carters' Incomparable Crimson, it is more hardy than Major Clarke's and remains solid to the last.

Lettuces for summer use, a good strain of Alexandria White Cos. We generally lose a good part of our Lettuces in winter through damp. Hick's Hardy I can do nothing with, and Brown Cos sometimes goes off entirely if we have much wet weather. The variety that stands best is comparatively new, called Hardy's Northern King, sent out by Messrs. Carter & Co. Of Cabbage varieties, Hammer-smith for winter, Paris Market for foreing. Endive—Broad-leaved Batavian.

Onions—White Spanish and James's Keeping; the latter keeps sound the longest, but is not so good in flavour as White Spanish. For autumn sowing—Queen, Giant Zittau, and Red Italian.

In sowing the seeds, also in transplanting young plants, use plenty of burnt refuse and old potting soil; more especially is this beneficial to Onions and Carrots, it gives them a good start, and puts their insect enemies at defiance.—ARTHUR BARKER, *Hindlip Gardens*.

HARDY PLANTS IN BLOOM IN JANUARY.

THE first month of the year is usually a dull one outdoors, but owing to the mild genial weather many plants that do not usually bloom till March and April are now showing their flowers. Some of the plants enumerated below are very beautiful, notably *Eranthis hyemalis* (Winter Aconite); thousands of them about the shrubberies and under trees look like sheets of gold. It reproduces itself freely from seed. Snowdrops are clean and good, and I have never seen *Jasminum nudiflorum* on the walls better than this year. *Narcissus Bulbocodium* (Hoop-petticoat Narciss) planted in the grass seems quite at home, and opened its flowers on the 20th of January, the earliest period I ever remember to have seen it; also *Leucojum vernum* (Snowflake) in clumps near it. Another plant that has bloomed most freely all through the autumn and still looks well is *Veronica Blue Gem*. This is a plant usually grown in pots for decoration, and very good for that purpose it is; but two little plants were turned out of pots last spring and planted in the rock garden, where they grew freely all the summer, and are now miniature bushes 2 feet high and as much across, and every shoot blooming well. This *Veronica* withstood 16° of frost last winter planted in the kitchen garden, and bloomed well the summer following. It is well worth growing for autumn decoration for a conservatory, and to flower it well must be stood in the full sunshine outdoors, with plenty of water as required, and pinching the shoots once or twice to make bushy plants.

Some clumps of *Geum coccineum* have produced flowers every month since last June, likewise *Erodium Manescavi*. These two are very useful for cutting purposes. *Helleborus niger* has been grand this last month, also *H. atro-rubens*. *H. foetidus*, with its green flowers, is rather a rank grower, and is more suitable for planting in the background. It seems to thrive in the shade under trees. Some Roman Hyacinths were planted in the rockery in October and are now showing colour. How they will succeed in a second year is questionable, but I shall leave them where they are to try. I have never known much good to be done with the forced bulbs after once flowering. Many times have I planted them in the grass and shrubberies with *Crocus*, *Narcissi*, *Tulips*, *Scillas*, and other bulbs; and although the latter have invariably come up and flowered all right, the Roman Hyacinths did no good. Possibly there may be some special treatment required for them after flowering, and if any of your numerous correspondents have succeeded in flowering them well a second time their practice would be worth recording, as there is no bulbous plant more useful to the gardener, and none more cheerful in rooms at midwinter. The following plants are now flowering here:—

Myosotis dissitiflora.

Geum coccineum.

Veronica rupestris.

" *Blue Gem*.

Violets, single and double.

Primroses, " "

Wallflowers, red and yellow.

Roman Hyacinths, white.

Erodium Manescavi.

Erica carnea.

Saxifraga ceratophylla.

Scilla siberica.

Snowdrops.

Polyanthus.

Helleborus niger.

" *atro-rubens*.

" *foetidus*.

Pansies in variety.

Daisies, double, in variety.

Berberis Darwinii.

Aubrietia purpurea.

Arabis alba.

Omphalodes verna.

Hepatica triloba corulea.

" *rubra plena*.

Eranthis hyemalis.

Pulmonaria officinalis.

Vinca minor.

Anemone coronaria.

Narcissus bulbocodium.

Leucojum vernum.

Crocus, yellow.

Scabious, dwarf.

Stock, Intermediate.

Jasminum nudiflorum.

—A. HARDING, *Orton Hall Gardens, Peterborough*.

COMMERCIAL ENTERPRISE IN CALIFORNIA.

OF recent years the interesting region on the extreme west side of the United States has attracted much attention as a field for agriculturists, and the facilities afforded to emigrants from this and other countries have caused a great influx of settlers. A fine climate, a great diversity of

fertile soils, and cheap land have enabled many small capitalists with a knowledge of farming to establish themselves in the new country on a large scale. Extensive orchards of Apple trees, Oranges, and Lemons, vineyards, Hop gardens, and vegetable farms are gradually spreading over the country, while in addition to these forms of industry bee-culture

fornian products on view, comprising samples of the different local varieties of grain, Apples, and miscellaneous fruits, together with sensational Vegetable Marrows and Pumpkins. A series of elaborately illustrated guides to the country are also issued from the same agency, giving full particulars respecting the climate, land, most profitable crops, &c.—information of great value to intending emigrants.

The scenery of some portions of California is well known to be unexcelled in variety and striking beauty, the celebrated Yosemite Valley especially having afforded a theme for many writers and travellers. The two views accompanying these notes will convey some idea of the principal features of the valley. The Sentinel Rock shown to the right of the general view of the valley (fig. 19) is a mass of perpendicular granite tapering into a peak 3043 feet above the level; but this is surpassed by El Capitan, which rises to 3300 feet; the Cathedral Rock and Spires, about 3000 feet; and the Three Brothers, 3830 feet high, are the principal elevations, which rising direct from the level of the valley impart an extraordinary appearance to the scenery. The Yosemite Falls (fig. 20) is another extraordinary feature. They are opposite the Sentinel Rock, and from March till July are exceedingly beautiful. The total height of the fall is 2526 feet in three sections—first a perpendicular descent of 1500 feet, then 600 feet of cataracts, and a final leap of 400 feet. "Professor Whitney concludes a description of the Yosemite Falls as follows:—'As the various portions of the falls are nearly in one vertical plane the effect of the whole is nearly as grand, and perhaps even more picturesque, than it would be if the descent were made in one leap from the top of the cliff to the level of the valley. Nor is the grandeur or beauty of the fall perceptibly diminished by even a very considerable diminution of the quantity of water from its highest stage. One of the most striking features of the Yosemite Falls is the vibration of the upper portion from one side to the other, under the varying pressure of the wind, which acts with immense force on so long a column. The descending mass of water is too great to allow of its being entirely broken up into spray; but it widens out very much towards the bottom—probably as much as 300 feet at high water, the space through which it moves being fully three times as wide. This vibratory motion of the Yosemite and Bridal Vail Falls is something peculiar, and not observed in any others, so far as we know; the effect of it is indescribably grand, especially under the magical illumination of the full moon.' " The whole of this region is indeed replete with interest to the traveller and naturalist, and the number of tourists who have visited it have increased from about twenty adventurers in 1855 to over 13,000 in 1882.

ENDIVE, IMPROVED ROUND-LEAVED BATAVIAN.

THIS is the best Endive grown. For years we cultivated many sorts, and in the course of time they were reduced to two, the above and the Moss Curled, but now this is given up, and we never had a greater supply or better Endive than from the one first named. Many amateurs, and single-handed men too, who have come to us to assist them in their seed lists, have been equally pleased with the result of being confined to this Endive. It is a hardy robust grower; other varieties being eaten by the snails when this is passed by. Especially is this the case when the plants are small and before they are blanched, but after that they are as tender as newly grown Chicory and as delicate as the most delicious spring Lettuce. Our first plants were ready in October, and now we have many perfectly sound which would remain good until Easter. In the early part of the autumn we tied them up to blanch, but of late the large heads have become so white in the centre that this attention has been dispensed with. Rain does them no harm, and they are less liable to be injured by frost than any variety I know. Two ordinary plants of this variety will make as much salad as six or eight of the curly kinds, and with plenty of the Batavian and Mustard and Cress no one need care much whether they have Lettuce or not for their winter salads. It is not the most seasonable time to speak of cultivating such plants, but it may serve as a hint for those now ordering their seeds.—J. M.

CULTURE OF SIBTHORPIA EUROPÆA VARIEGATA.

THE variegated form of *Sibthorpia* when used effectively in the decoration of hanging baskets or as a wall-creeper in a greenhouse is not easily to be forgotten, and one which invariably inspires those who see it with a determination to imitate, and if possible succeed in producing a similar result. Well-grown plants are, however, rare, and although the value of the plant for this work is both well known and appreciated, failure has hitherto attended many attempts to establish it in private gardens. With me this plant has been most satisfactory, and that in the vicinity of London, too, where its successful cultivation has long, I believe, been considered impossible owing to the heavy fogs and generally smoky condition of the atmosphere. Two of the most obvious if not the only



Fig. 19.—SENTINEL ROCK, YOSEMITE VALLEY.

has received a large share of attention, with the most gratifying results. The culture of cereals also forms one of the chief employments, Wheat attaining great perfection in nearly all districts. Not only can all the ordinary European products be obtained in perfection, but many sub-tropical fruits can be grown successfully, a wide range of plants suitable for cultivation being thus available. To exemplify this Mr. W. G. Kingsbury, the European emigration agent for California and Texas, 41, Finsbury Pavement, London, has for some time had a small museum of Cali-

real causes of failure are due in a great measure to syringing and giving the plant water over the foliage, together with growing it in a too humid and overheated atmosphere. It is true that until the plants are established they require to be kept rather close, but a handlight is quite sufficient for this purpose even in a cold frame.

It is most readily and satisfactorily propagated about the end of August or beginning of September. The cuttings, which should be taken off the points of the overhanging shoots, should be placed closely round the edge of the pots in which they are intended to be grown, plunging under a bellglass or handlight as above stated. No water will be required for the first two or three days, and then only the material in which they have been plunged will require damping. In April or May they will be ready for the house, and if arranged alternately with *Isolepis gracilis* on the front stage their gracefulness never fails to repay labour. Dipping the bottom of the pots in a tank or other vessel is the best means of supplying them with moisture. With regard to growing the plants on a wall, all that is required is the displacement of a brick near the top and introducing some soil before planting. In one season I grew a plant in a large pan measuring nearly a yard in circumference in a cool frame.—M. S.

"SINGLE-HANDED."

As will be seen by the under-mentioned letters, there is practically no hope of the recovery of the worthy man who by his able writings under the above signature has attracted so much attention, and whose exceptionally painful case has evoked so much sympathy.

His sorrowing wife expresses her "deeply grateful thanks to all who have aided, and whose kind acts and loving sympathy have cheered my husband through many an hour of loneliness and pain. He is sinking fast. We get no more than a simple 'Yes' or 'No.' We can only await the end now. He has left the world and all behind and awaits the summons calmly. He has often said he had no regret in leaving the world but that he was leaving his children unprovided for. We can only trust to the promise God has given us that He will be a Father to the fatherless, a Husband to the widow. I have clung to hope as long as there was a ray left, but one by one my props have been knocked down, and I can only cling to my Maker and weep."

The following letter has been received from the medical attendant of our afflicted friend.

"124, Western Road, Brighton.
"February 4th, 1884.

"DEAR SIR,—Your correspondent, whom I saw yesterday, is again much weaker than he was when I wrote to you a week ago; he has hardly strength enough left to speak aloud, and the end cannot be far off. He has been suffering much pain during the past week, and is certainly beyond all hope of recovery.—Yours faithfully, ALLEN DUKE."

To all who have aided in this extreme case of misfortune my earnest thanks are tendered—to the kind-hearted "Lady who Loves her Garden," who helped so well; to the noble marquis who increased his excellent gardener's gift; to head and under gardeners who have joined in this good work; to the "poor clerk" who sent half a crown—in fact, *all* are thanked for their welcome, because really needed, assistance.

My object was first to aid our friend in the hoped-for convalescence, and failing this to meet the necessarily great expenses that must be incurred, and in assisting the family back to Scotland. I have now hope of being able to effect this, to a very great extent at least, and with a few other contributions that may be kindly sent, to effect it wholly. That is my desire.

I have to add that it is the wish of our friend that all helpers who desire seed of his hardy border Alpines should have it, and a further supply will enable me to send a pinch to those who have failed to obtain a packet, and who will be good enough to enclose a stamped directed envelope for its transmission.—J. WRIGHT, 171, Fleet Street, London, E.C.

THE NOTTS HORTICULTURAL AND BOTANICAL SOCIETY.

THE second annual dinner of this healthy county gardening Society was held on Thursday the 31st January in the dining-room at The Arboretum, Nottingham. Six o'clock was the hour appointed, and on assembling together the very first thing that struck the observer on entering the room was the, so to speak, characteristic—the professional individuality of the whole appearance of the place, and the decorations of the tables. The floral arrangements were most artistic, the centre-piece in front of the Chairman being a masterpiece of excellent taste in the disposition of flowers (which were of the rarest and choicest) and foliage with which it was set up; and the plants, chiefly *Aralias*, *Crotons*, *Dracenas*, and *Ferns*, were of that exact size and so proportionally put about the tables as showed that the gardener decorators who had arranged them were no novices in the art of dining-room adornment. There was a brightness of beauty that had an imposing effect on everyone who entered the room. The dinner need not be described, except that it was what might be expected from so experienced a caterer as Mr. Rodgers of The Arboretum Refreshment Rooms, and the Society for whom he had prepared it.

The Chairman of the evening was the President of the Society for the year 1884, Mr. Alderman Manning, the Mayor of Nottingham; and surely no better, no more genial, no more garden-loving, no more

happiness-diffusing a Chairman could have been found. It was only needful to look on his cheering countenance to see that if "he was no gardener," as he humorously lamented later in the evening, yet that the spirit of gardening was in him, and that he loved gardeners and all their works, and was for the time being glad to be in their company. His speeches overflowed with happy good humour, with kindly wit,

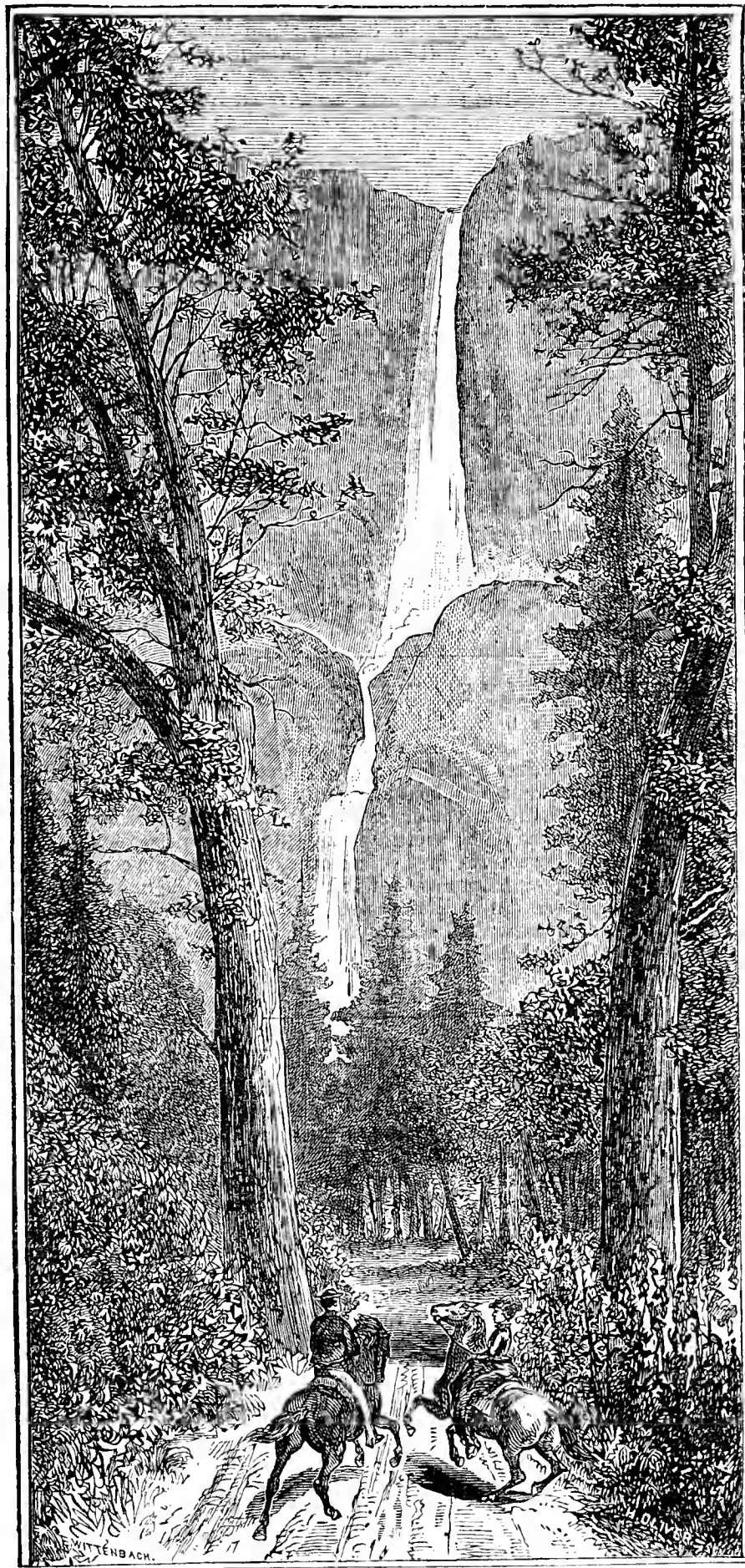


Fig. 20.—YOSEMITE FALLS.

and with words of golden wisdom, and (it is not saying a word too much) the success of the dinner was largely due to the admirable manner in which the Mayor of Nottingham presided.

His supporters were men of the right stamp—true gardeners or garden lovers, such as Mr. Councillor Baines, Mr. Booth of the Nottingham School Board, Mr. Thacker (the first Chairman of the Society), the Messrs. Pearson (Alfred and Charles) of Chilwell, Gadd of Wollaton, Belliss of Newstead, Anderson of Clifton, Edington of Woodthorpe, and many others—gardeners of every degree, from the highest in gardening position in the county down to the humblest under gardener, with market gardeners and allotment gardeners, tenants of the Nottingham

Corporation scattered amongst the lot. It was a goodly and a representative company of the gardeners of Nottinghamshire.

The toast list was well drawn up, giving opportunity for the saying of good things; for loyal sayings, in "the Queen and the Royal Family," with the singing right lustily from warm hearts of "God Save the Queen" and "God Bless the Prince of Wales;" in appreciative sayings, as "the Army, Navy, and Reserve Forces," and "the Houses of Parliament;" in professional sayings, as in "the Nottinghamshire Horticultural and Botanical Society;" in congratulatory and complimentary sayings, as "the President of the Society;" in municipal sayings, as "the Town and Trade of Nottingham;" in dutiful sayings, as "the Ladies;" and in rightful sayings, as "the Press;" besides many others which suggested themselves as the evening advanced.

These toasts were all proposed and responded to with much heartiness, and with a freedom of thought and language which speaks well for the debating powers of the members of Notts Horticultural and Botanical Society—a fact that was borne witness to by the proposer of the toast of the evening, "the Society," when he said that "he had attended a few of the monthly meetings of the Society, and was much struck by the intelligent way that the members expressed themselves in the discussions, the admirable way the debates were carried on, and the depth of reading and breadth of observation which enabled the speakers to take their part in the business of those monthly meetings, which were to him so highly creditable and interesting."

The speeches were interspersed with songs, many of them from gardener singers, and all showing good taste in the selection of the song and the rendering of it, and much study and practice in the cultivation of the voice. The whole evening was a very happy one, and everyone, from the Chairman down to the humblest gardener present, appeared to catch up the spirit of the meeting and cultivate it. Though the weather outside was wet and damp, having interfered with many being present, and giving prospect of a miserable walk or ride home, these disagreeables did not mar the harmony of the evening.

The menu and toast list had been specially designed and printed for the Society, and were most appropriate, suggestive, and excellent.—N. H. POWNALL.

PRIZES FOR EARLY-FLOWERING CHRYSANTHEMUMS.

I HAVE just received from the Crystal Palace a schedule of prizes, and among those for the Show of September 5th and 6th, 1884, at p. 12, No. 7, are the prizes as follows:—For collections of early-flowering Chrysanthemum indicum (to be sufficiently in flower for decorative purposes), not less than six varieties, three plants each, and grown in 8-inch pots. First prize, £4; second prize, £3; third prize, £2. Now, as far as I know, these are the first prizes ever offered in this country for early-flowering Chrysanthemums, I think this should be more widely known than it can be through that schedule alone. Any person who may wish for more particulars should apply to Mr. W. G. Head, Garden Superintendent, Crystal Palace, Sydenham.—W. PIERCY, 89, West Road, Forest Hill, London, S.E.

CHOU DE BURGHELEY.

LIKE all new introductions this has been favoured with much attention of late; some asserting it to be inferior to the most ordinary Cabbage, while others have extolled its qualities to the utmost. I do not say that those who have written against it had no cause to do so, as by some means or other their produce may have turned out entirely different from what was expected. I am certain this is no fault of the vegetable, and the same difference occurs in many vegetables besides Cabbage Broccoli. Take Celery for instance. May not the very best variety ever introduced often be found soft and pithy with one cultivator, while with another the same variety is hard, crisp, and delicious? In this way I am inclined to account for the variation in the quality of the Chou de Burghley. It has been cultivated in our garden since some time previous to the award of the certificate until now, and from first to last it has shown a distinct, true, and superior character. In fact it has at all times corresponded with the description of the raiser, and I do not think any more than this can be expected from it. I would briefly recommend it as being superior to any Cabbage, a good substitute for Broccoli in winter, and a vegetable which merits cultivation in every garden.—A KITCHEN GARDENER.

FLOWER SHOW SCHEDULES.

THE managers of flower shows will now be thinking of revising and issuing their prize lists for the season. It is a very difficult matter for a committee, no matter how careful they are, to issue a schedule faultless in the eyes of all parties. Some public discussion on such matters may lead to good results, as it has done in the past, for of my limited experience I could point to reformations being effected with great advantage from their being brought to notice in your pages. I venture to make a few remarks on the schedule of the Brighton and Sussex Horticultural Society in hopes that they may prove of some general interest to others who may have to be subjected to similar rules and circumstances; and if exhibitors would express their opinions freely and fairly committee-men are not so blind to their own interest as to turn a deaf ear to their complaints.

In your report of this Society's September Show you made reference to the falling-off in the number of entries. I think I can point to one

reason for this falling-off. To those who "go in" for exhibiting a two-days show is thought nothing of; but to the great majority of those who come together to make up such local displays as that at Brighton a two-days show is rather a disadvantage. Until last year I think Brighton was simply a two-days show, but now it is virtually a three-days show to the exhibitor. Instead of closing the show at an early hour in the evening of the second day, it is now stated that "all exhibits must remain untouched until the morning of the third day, in consequence of keeping the show open until 11 P.M. on the second day." And they are not content with this, but they must needs pay the prize money on the second day to make sure of having exhibitors present all three days. Now three journeys, if only a short distance, and three broken days, will not pay the small exhibitor who simply wants an outing, and takes a few exhibits to try to get his expenses out of them. It would pay him better to simply pay a shilling the second day to see the show, and meet friends he has been accustomed to greet on such occasions, and be content to drop out of the list. Few would object to the two days, because a gardener may take a few dishes of fruit or boxes of cut flowers, see the show, meet his friends, and otherwise enjoy a holiday, and on the second day give his young man or men a similar outing, and let them bring home the exhibits. I think the Committee should carefully consider what money was taken at the doors after 8 P.M., and see if it would not be advisable to close the Show at that hour, as even then a great number of exhibitors of small things could reach home by late trains.

When I saw the excellent display of Grapes staged at Brighton last September I thought it was a great pity that the wording of the schedule prevented any other than Black Hamburgs and White Muscats from entering into the competition. It is no doubt more satisfactory to judges and competitors when only bunches of the same Grape are staged in the same class, and this should be followed as far as possible; but I think it is a mistake to exclude all other sorts at a September show. I think it would give a much more interesting show of Grapes to reduce the number of bunches of Black Hamburg Grapes and Muscats, and offer prizes for a few other popular sorts, while two bunches well shown show the quality of the fruit as well as six bunches.

The question of entrance fees might also be reconsidered with advantage. When we consider that the promoters of great shows are reducing, and many doing away with entrance fees altogether, I think the Brighton tax on exhibiting is rather heavy. In the "All-England" division there are ten classes taxed at 2s. 6d. each, while all the others, forty in number, are 1s. each, and similar amounts have to be paid in the "County" division for smaller prizes. I am not an advocate for the no-entrance-fee system. I think exhibitors entering into competition with some prospects of gain should cheerfully subscribe to the funds of the Society, but I think it should be in the form of an annual subscription, constituting membership.

While writing on this subject it has occurred to me to mention a rather curious mistake that was made in the schedule of the Brighton Hove and South of England Chrysanthemum Society. In Rule 1 it is stated that the entrance fee will be "2s. 6d. for the first entry, 1s. 6d. for each subsequent entry (members free)." On seeing this it was natural to inquire what constituted membership, but, strange to say, there is not a word in the schedule conveying this information. I have since the Show been informed by a friend that by subscribing 5s. you become a member. If this be so, all exhibitors will become members, and many who do not intend exhibiting should also do so, for I find by the schedule that members get a free pass and one ticket for his 5s. For this sum he will not only have the pleasure of examining the exhibits, but will also have the pleasure of listening to some excellent music—in fact, he has four miscellaneous concerts.

I was very much pleased with this fresh effort to popularise the Chrysanthemum at Brighton. I understand that it has been chiefly promoted by the younger members of the Brighton gardeners, and it must be admitted that their first show was a good one, and that they showed considerable ability in conducting it and in providing acceptable amusements, so necessary to the success of such gatherings. I hope to see such another show next autumn. I also hope that these shows will be financial successes, and that the Dome and the use of the organ will be granted on as easy terms as possible for so useful a purpose.—A MID-SUSSEX GARDENER.

FLORISTS' FLOWERS.

As time rolls on it brings with it many changes, and I think that amongst those changes in which horticulture is concerned is the light in which even a veteran regards exhibiting. Exhibitions may please, and do please, for the love of flowers does not wane as years increase; but the desire to engage in the contests of the exhibition table, as far as my own personal observation goes, does certainly diminish. The trouble and worry that sat lightly upon us in our earlier days are become invariably a burden now, and as we think of what it involves we come to the conclusion that the game is not worth the candle. The small ambitions of former days no longer kindle a flame within, and we are contented to be snuffed out by younger and abler hands. I have never been much of an exhibitor, and I must honestly confess never a very successful one—indeed, there are but two flowers in which I have ventured upon it, the Auricula and the Gladiolus. The latter has simply disappeared from the schedules of our metropolitan societies, because of

late years there has been no competition, so that even the Crystal Palace Company did not include it in their autumn show last year; and yet it was there that the best exhibitions of the flower have been held. As to the Auricula, it has never, perhaps, in its history been so largely exhibited as within the last few years; but I have come to the conclusion that a small grower like myself has not the ghost of a chance now-a-days. I cannot afford to grow the large battalions which so many possess; and although by a fluke one may take a prize, yet I hold that in the long run the chance of the small grower must be a small one. "But why not grow a large collection?" it may be said. "It is your own fault you don't know how to propagate them, and hence when you complain of large growers it is simply a proof of your own incompetency." It may be so; but when we grow a number of plants, as I do, where space is limited and money still more so, a couple of frames full are about all that we can attempt; and with this, although classes were expressly made for small growers, we find exhibitors who grow their thousand plants entering into competition with one who counts them by dozens only. But I hasten back to my former statement, and say that when one gets half way through the seventh decade a fair excuse may be put in for not undergoing the fatigue and worry of exhibiting; in fact, I know but few exhibitors (amateurs) who do so continue.

My reason for prefacing my remarks on work amongst florists' flowers at this season with this statement is, that in anything I may say as what is to be done at any particular season, I shall have only the growing and not the exhibition of the flower in my mind. It need not be said that there is much difference in the two methods. If we "go in" for exhibiting, let us say, Auriculas when the collection is small, regard must be had to the state of the plants as to their time of flowering—the plants must be retarded or pushed forward, according to the circumstances of the season; while he who grows only for the love of the flower itself is perfectly indifferent as to when they bloom. He can see without dismay the plant of George Lightbody, which was the *spes gregis*, day by day losing its freshness, while the day of exhibition is still a week distant; or his "Lancashire," which, had he that on exhibition, he would have hoped to be in, still remains with its pips unopened. When a grower has his twenty or thirty of each of these varieties he may be indifferent about it. Not so the small grower who has to depend on two or three; moreover, he may be more anxious about the size of his blooms—a fair-sized truss and pip will please him just as well as one of the orthodox size. I do not in the least write against exhibiting. I am persuaded that there is nothing which tends more to the popularity of a flower than its being brought forward as an exhibition flower; indeed, I daresay some will say that I am like the fox who lost his tail, and that on failing excuses for my own want of the caudal appendage, I am only looking out for reasons why it is so very desirable to be without one. Be it so; I must bear the reproach. The active season for florists' flowers is now at hand, and foremost amongst those demanding our attention is the

AURICULA.—The season for top-dressing has now arrived, and in both large and small collections this indispensable operation has to be gone through. In former days I have known the compost used to be very rich; but the older florists recognised, what I believe is the true state of things, that it is better to use a compost containing a little more loam than in that used for potting. Ever since the advent of that troublesome pest the woolly aphid I have at the time of repotting turned the plant out, and when I found any of them on the roots have rubbed them off, and have been very particular about clearing them away from the collar of the plants. The surface should be removed to the depth of an inch or more, but the roots should not be injured—indeed, disturbed as little as possible. Care must be taken that the soil in the pots is not too dry before the top-dressing is put on, and then the top-dressing applied to be gently pressed down and a watering with a fine rose given, so as to settle the soil; taking care, however, to wet the foliage as little as possible. Of course, all withered leaves will have been previously removed. The pots may then be replaced in their frames facing the south; but care must be taken, notwithstanding the extraordinary weather that we are now experiencing, that the frames are covered up at night, for although frost does not injure the plant it is very injurious to the evenness of the blooms, making them rough and crimply. Where there is the convenience for so doing, their removal into a pit where the grower can walk in and see his plants, no matter what may be the state of the weather, is very desirable; besides, they show better in such a position, and the pit can be afterwards utilised, as I have done mine for growing Tomatoes very successfully.

CARNATIONS AND PICOTEEES.—The same reasons (saving of trouble and expense) have determined me in future to grow these in beds instead of pots. It was the way in which I recollect in my boyish days that one of the finest collections I remember seeing in those days was grown, and in the north it is a very common practice. It has, of course, some disadvantages, notably in layering, as the person who performs that operation has to sit or kneel on the ground when doing it. Nor is there the same safety from wireworm that there is when grown in pots, for then the compost can be carefully hand-picked; but this is not very easy when grown in beds. Happily, my own garden is not much infested by them, but it is a safe plan to put pieces of Potato or Carrot in different places in the beds just under the surface to trap them. My own plants are now in their winter quarters, and I do not ever remember seeing them more healthy, with less decaying foliage, and quite free from spot. I shall not plant them out until the beginning of March, and then place hoops and a calico covering over them for a short time. Care must now be taken that they are not allowed to get dry, and also that aphides are not allowed to increase. The frame should either be fumigated or the insects brushed off with a camel's-hair pencil.

PANSIES.—The change which has taken place in the taste for these is very remarkable, the Fancy Pansy having to a large extent superseded the old white and yellow ground Show varieties, and one can hardly wonder at it. They are hardier, more striking in colour, larger, and have been now so improved in form as to present that circular outline so dear to the florist. My own small collection is divided into two parts; one is in a bed, the other in pots. These latter I have recently transferred to their largest pots—that is, into 32's, in a compost of two-thirds loam, one old hotbed manure, and a little sharp sand. They are now making vigorous growth in a frame facing the east, where they can be exposed to the morning sun but can be closed in at night. Where this operation has not been completed it should be seen to at once. Sticks should be placed to the longer shoots, or else these should be pegged down, as long shoots straggling about are very untidy.—D., Deal.

ELECTION OF CARNATIONS AND PICOTEEES.

THE ELECTORS' RETURNS.

[The names of the raisers of the varieties in the following lists have been given in the preceding election returns.]

From Mr. W. M. HEWITT, Chesterfield.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
Fred
Robert Lord
Mars
Master Stanley
George

Crimson Bizarres.

Rifeman
Master Fred
E. S. Dodwell
John Simonite
Thomas Moore or
Samuel Barlow

Pink and Purple Bizarres.

Sarah Payne
Mrs. Barlow
William Skirving
Mrs. Anstiss
H. K. Mayor
Falconbridge

Scarlet Flakes.

Scarlet Keet
James Cheetham
Sam Brown
Henry Cannell
Clipper
Sportsman

Purple Flakes.

James Douglas
Squire Whitbourne
Mayor of Nottingham
Dr. Foster
Mayor of Oxford
Florence Nightingale

Rose Flakes.

Sybil
John Keet
Tim Bobbin
Rose of Stapleford
James Merryweather
Jessica

PICOTEEES.

Heavy Purple-edged.

Muriel
Mrs. Niven
Mrs. A. Chancellor
Zerlina
Tinnie
Medina

Light Purple-edged.

Clara Penson
Mary
Her Majesty
Minnie
Ann Lord
Alice

Heavy Red-edged.

John Smith
Brunette
J. B. Bryant
Mrs. Fuller
Morna
Master Norman

Light Red-edged.

Thomas William
Mrs. Bowser
Elsie Graae
Violet Douglas

Heavy Rose or Scarlet-edged.

Mrs. Payne
Fanny Helen
Royal Visit
Mrs. Rudd
Mrs. Webb or Esther Minnie
Lady Holmesdale or Edith
Dombrain

Light Rose or Scarlet-edged.

Miss Flowdy
Daisy
Evelyn
L'Elegant
Miss Wood

From Mr. RICHARD GORTON, Eccles.

CARNATIONS.

<i>Scarlet Bizarres.</i>	<i>Purple Flakes.</i>
Admiral Curzon	Dr. Foster
Robert Lord	James Douglas
Fred	Squire Whitbourne
<i>Crimson Bizarres.</i>	<i>Scarlet Flakes.</i>
Master Fred	Sportsman
J. D. Hextall	James Cheetham
E. S. Dodwell	Clipper
<i>Pink and Purple Bizarres.</i>	<i>Rose Flakes.</i>
William Skirving	Jessica
Sarah Payne	Rob Roy
Squire Llewelyn	John Keet

FICOTEEES.

<i>Heavy Purple-edged.</i>	<i>Light Red-edged.</i>
Zerlina	Mrs. Gorton
Mrs. Summers	Thomas William
Alliance	F. D. Horner
<i>Light Purple-edged.</i>	<i>Heavy Rose-edged.</i>
Ann Lord	Mrs. Payne
Clara Penson	Miss Horner
Her Majesty	Royal Visit
<i>Heavy Red-edged.</i>	<i>Light Rose-edged.</i>
John Smith	Mrs. Allcroft
J. B. Bryant	Mrs. Nichol
Princess of Wales	Fairy Queen

From Mr. THOMAS BOWER, Little Horton Green, Bradford.

CARNATIONS.

<i>Scarlet Bizarres.</i>	<i>Scarlet Flakes.</i>
Admiral Curzon	Clipper
Fred	Sportsman
Arthur Medhurst	Annihilator
George	Dan Godfrey
Robert Lord	John Ball
Edward Adams	Heury Cannell
<i>Crimson Bizarres.</i>	<i>Purple Flakes.</i>
Master Fred	Dr. Foster
Harrison Weir	James Douglas
J. D. Hextall	Squire Meynell
Thomas Moore	Squire Whitbourne
Lord Milton	Juno
Rifleman	Lord Derby
<i>Pink and Purple Bizarres.</i>	<i>Rose Flakes.</i>
James Taylor	Sibyl
Falconbridge	John Keet
Sarah Payne	James Merryweather
Squire Llewelyn	Mrs. Dodwell
Mrs. Barlow	Rob Roy
William Skirving	Maid of Athens

FICOTEEES.

<i>Heavy Red-edged.</i>	<i>Light Purple-edged.</i>
John Smith	Ann Lord
J. B. Bryant	Minnie
Brunette	Mary
Mrs. Dodwell	Nymph
Mrs. Fuller	Master Nichols
Winifred Esther	Her Majesty
<i>Light Red-edged.</i>	<i>Heavy Rose or Scarlet-edged.</i>
Thomas William	Mrs. Payne
Elsie Grace	Miss Horner
Violet Douglas	Mrs. Rudd
Mrs. Bower	Fanny Helen
Clara	Edith Dombrain
William Summers	Lady Holmesdale
<i>Heavy Purple-edged.</i>	<i>Light Rose or Scarlet-edged.</i>
Zerlina	Mrs. Allcroft
Alliance	Miss Wood
Mrs. A. Chancellor	Bertha
Muriel	L'Elegant
Tinnie	Nellie
Lizzie Tomes	

THE INSECT ENEMIES OF OUR GARDEN CROPS.

THE ASPARAGUS AND THE CELERY.

It is somewhat amusing to notice how surprised many persons are who have but a small knowledge of either botany or gardening when the Asparagus in its summer growth is pointed out to them, and they are told this is the plant of which they have eaten the heads during the spring. Their looks probably convey the impression that they had fancied Asparagus grew in Mushroom fashion, throwing up the tops which are cut for the table, but dying off soon or directly after these are cut. The plant when in its full foliage is certainly a pretty sight, and to a lover of Nature perhaps its beauty is rather increased by the numerous beetles that may be seen enjoying themselves, seemingly, amongst its feathery tufts; but these little objects noticeable upon the plants in July, August, or later, do not convey pleasure to the gardener's mind. They tell

of past mischief done to the Asparagus, and foretell further damage should they be left unmolested. The presence of the beetles, however, would not necessarily imply neglect, for they will occasionally travel from garden to garden, also it might happen that the grubs which lurk insidiously upon the shoots have escaped notice owing to the positions they have occupied whilst feeding: and the species appears to be more common some years than others, much depending upon the weather in the early part of the season, I suspect, for should the spring brood be checked the later broods will be few in number.

The Asparagus beetle, *Crioceris Asparagi*, has a resemblance to the familiar "ladybirds." The head is black, the thorax reddish-brown dotted with black, and similar colours appear on the wing-cases, which, in addition to spots, have two black bars crossing each other, hence some have called the insect the "cross-

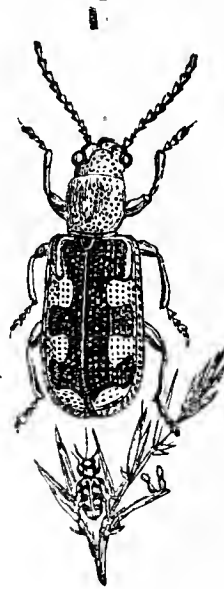


Fig. 21.

bearer" (fig. 21). It feeds a little upon the leaves, but the principal mischief is caused by the grub or larva. To remove and destroy the beetles is therefore important, as checking the deposition of eggs. These may be now and then seen in rows upon the shoots, though very small, or on the flower-buds. They fall readily from the plants, so they can be shaken off into cloths or trays below. Some advise strewing lime freely over the plants after rain, as this will kill them.

But the grub is not easy to be dislodged, for it holds firmly to the shoots by its short legs and curved tail. This is of a greyish brown colour, the head being black; if alarmed it discharges a liquid from the mouth. We seldom detect it upon Asparagus till June, but the larval life is short, about two or three weeks, and when full-fed it descends to the earth, making a cocoon just upon the surface. The June brood of grubs is followed by at least one or two more. If these are not killed off, the application of soot mixed with a little salt to the ground when they have gone down will prevent their emergence as beetles, or the grubs may be dealt with on Miss Ormerod's plan, soot being laid down to receive them, and the Asparagus plants syringed with water warm enough to loosen the insects from the shoots. These may also be gently tapped. Syringing with a solution of paraffin has been successful, and in very bad cases it may be necessary to dust the plants once or twice with powdered white hellebore. Of course neither of these applications could be used during the cutting season.

The eaters of Celery, as well as its cultivators, are well aware of the fact that it has an insect enemy which devours the stems, or at least makes tracks and passages through these, the surfaces bitten by the maggot turning to an unpleasant red colour. It also mines in the leafstalks, being very noticeable upon the Celery from the end of autumn until spring. If we pull up a plant that we suspect is infested, there are usually signs that the maggots have commenced operations below and worked upwards. On examining a maggot it is seen to be legless and of a yellowish colour, with a horny head that can be withdrawn into the body at times. It is full-grown in spring, and the fly appears during May. This has a black head and body. Upon the latter are fine golden hairs, the wings colourless, excepting the veins. In size it nearly resembles the Celery leaf-miner next to be mentioned, being about half an inch across the wings when these are expanded. No means have proved very efficacious in warding off attacks from this fly. The prompt removal and destruction of all infected stems seems the only plan to diminish their numbers.

The fly of the Celery leaf-miner, *Tephritis onopordinis* (fig. 22), has also transparent wings, but with tiny brown patches upon them. The head and body in this species are brownish, eyes dark green. May appears to be the month when it is particularly abundant, though there is a later brood, or possibly two; the maggots growing rapidly when the summer is of average warmth. Towards the autumn a few linger on in the leaves, but most of them descend to the earth before the cold nights of autumn, remaining there as pupæ through the winter months. This maggot or larva, which is legless, whitish green, blunt at the tail, with sharp retractile head, shows itself by producing blisters upon the Celery leaves. These patches, first white and afterwards brown, are sufficiently visible for children to be employed in pinching the leaves infected, and hundreds or thousands may be thus killed. If the operation, however, is performed carelessly or hastily, the plants are likely to be as much injured almost as if the maggots had been left untouched. In some cases the plants are positively killed by this pest, especially

where water has been scant and manuring not well attended to, because the new growth does not then replace the leaves that have perished.

One of the correspondents of this Journal states that he has found brewers' hops a good preventive. When the Celery seedlings are pricked out he sprinkles some hops amongst them, and at the time the plants are removed to the trenches he puts more between the rows. This seems to keep the flies from approaching to deposit eggs. Also the leaves may be dusted with soot, lime, or other substances which are likely to keep them from settling upon the young plants. The winter is an important season for operations, since many pupæ are lying then in the earth just below the Celery, hence the advantage of scraping off the surface and of rough digging, which buries some too deep for the flies to emerge, and brings others within reach of birds. Or gaslime may be used to give the soil a dressing; this will kill most of the pupæ. The Celery fly has a parasite which reduces the number of the pupæ that produce the mature insect. It appears to attack the larvæ, placing one egg in each; they turn to pupæ, but the enemy within ends their life in this stage. This useful species is called *Phagonia smaragdina*; it is a beautiful object under a magnifier, of a golden green, having the antennæ and legs bright orange. Some years the blisters of this leaf-miner are not uncommon upon the Parsnip also, a plant which does not seem to have any foes peculiar to itself, but which is sometimes infested by the "rust" of the Carrot (*Psila rosæ*), and the two species of *Depressaria* which visit the flower heads

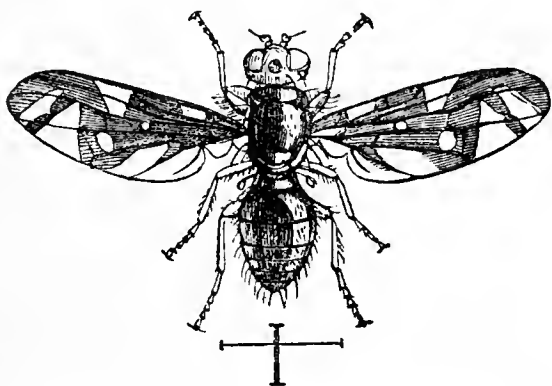


Fig. 12.

and seed of the Carrot occur upon the Parsnip as well. That very general feeder on roots and stems, the wireworm, larvæ of one or other of the click beetles or *Elaters*, occasionally touches Celery, but much prefers Carrots or Turnips when they are handy. I have not found the Celery attacked by the subterranean caterpillars of those common garden moths, the Turnip moth (*Agrotis segetum*), and the Dart (*A. nigricans*) though it would be no wonder if such were the case. — ENTOMOLOGIST.

PEACH TREES CASTING THEIR BUDS.

IN reply to "Alpha," I may state that for more than a dozen years I used nothing but spring water for watering the indoor borders of Peach houses, and it was never warmed or brought to the same temperature as that of the house in which the trees were growing, but it was distributed by a hose pipe just as it came from the cistern into which the spring delivered, and as the cisterns were underground the temperature of the water was rarely more than 50°. This may seem strange as applied to Peach trees forced to ripen their fruit in May or early June, and still stranger to syringe the trees twice a day with the same water at the same temperature. It may be considered contrary to sound practice, and yet I never noticed any sensible difference in the results when the trees were watered and syringed at the same temperature as that of the house or when they were supplied with the cold water. Did the buds fall? Yes, some of them two years in the fourteen, yet it did not occur to me that it was due to the spring water; in fact it was not, as the buds were cast in one of the years when tepid water was applied—viz., in the fourth year from planting, and in the eighth when they were supplied with the cold water. The buds were cast just as badly with the warm soft water as with the cold spring water. This may appear remarkable, yet it is not in the least perplexing, as the trees had attained in the third year to such a degree of luxuriance that the wood did not ripen, and some of it was fully 6 feet in length, and nearly as thick as the thumb. The buds were cast for the most part from the weaker wood, double and even triple fruit buds coming off in a shower. The buds on the strong wood, though they remained, expanded into deformed flowers deficient in the organs of fructification, some with two and even three pistils, and the anthers defective in pollen. Although fertilised with pollen from other trees, the set was very indifferent, and fully nine-tenths of the fruits fell during the stoning process. The growths were magnificent, leaves 9 inches long and 3 inches across at the widest part. They were well fed and well watered. It was

clear what was wrong. The borders were too rich, too wide, and too deep. It is a common error, and more disasters are attributable to this cause than any other, as when the roots are in wide deep borders they make more wood than is needed for the due extension of the trees or for insuring a supply for future bearing. The roots go down deeply, and no mulching in that case will attract them upwards. The drainage was all that could be desired, and the border also as regards materials, only there was too much of it, and if it had a fault at all the compost was too rich.

I did not see my way to alter the border, therefore set to work to alter the trees. Consequently as soon as the wood had become a little firm a trench was taken out a yard from the stem all around down to the drainage and every root cut off. The trench remained open about a fortnight, care being taken that the circle did not lack moisture during that time. This put a stop to all further growth, and the need to stop laterals ended. The surface soil before filling in the trenches was removed down to the roots and some of them brought nearer the surface, but not many. The trenches were then filled up, a good watering given, and the buds swelled plumply. No buds were cast, not even of *Noblesse*, *Grosse Mignonne*, *Bellegarde*, and *Barrington*, the former being one of the worst bud-casters known. The set was good, and the stoning most satisfactory.

In the eighth year the buds began to fall again, the roots were too strong, and the wood was corresponding. Lifting was resorted to, and so severe were the checks that despite keeping close, syringing, and shading, some of the wood shrivelled slightly, but it was only temporary, for when the roots were in action again it plumped up and the buds also. No buds fell, and the set and stoning were all that could be wished. No more buds were cast, for the simple reason that when the trees showed any tendency to over-luxuriance they were lifted as soon as the wood became firm, and then the wood ripened and the buds formed perfectly. This is one side of the question; there is another which I shall presently allude to, but before doing so would like to point out that when a Peach tree makes strong wood (and there is nothing like it for obtaining fine fruit), the trees being on the extension system there must be more space allowed between the shoots, so that the foliage may have full exposure to light and air, for when the growths are crowded the wood, for want of those elements, is not solidified, and never has a chance of becoming ripened. This is a very prevalent error, and cannot be too often pointed out with a view to its avoidance.

Then Peach trees cast their buds most frequently, it must be allowed for lack of nutrition, especially of the great solvent—water. This is by far the chief cause of Peach trees casting their buds. We very often see water given plentifully when the buds are swelling, and not infrequently it serves no purpose, except to cause them to fall. They have been dry at the roots all the winter, the house has been kept dry, the wood has been losing moisture all the time, and the buds have been literally starved to death—dried up. When the watering is given the sap is drawn or impelled upwards, and it serves no purpose but to push off the buds, simply because they have no channels to receive the nutriment which in their case comes too late. The roots of Peach trees are always more or less active, and to keep them dry when the trees are at rest is to jeopardise the buds.

There is another aspect of the question—viz., Peach trees casting their buds from imperfect development in embryo. It is a mistake to keep the borders well supplied with water up to the fruit ripening, and then begin to diminish the supply or allow, as is sometimes done, the border to become dry with a view to ripen the wood. Until the fruit is ripe, or nearly so, very little is done by the trees towards bud-development, but as soon as this is effected the vital force seems concentrated on the fruit buds, which swell with amazing rapidity. This is the time when the roots need moisture, and if the trees have carried a heavy crop give them liquid manure, also removing all wood not required for the next year. This serves the twofold purpose of concentrating the strength on the buds for future bearing, and by admitting more air ripens the wood perfectly. We conclude, therefore, that the soil in which Peach trees are growing should never be allowed to become dry; more particularly is this the case when the buds are being plumped than during the earlier stages of their formation.

Lastly, Peach trees cast their buds through the foliage being allowed to become a prey to red spider; the leaves in that case are not able to perform their functions, and they collapse ere the buds are perfectly formed.—G. ABBEY.

RELATIVE to Peach trees losing their buds, may I inform "Alpha" that I have been troubled in the same way with trees in pots? Consequently last season I resolved to give them a natural winter's rest out of doors, and I am sure there cannot be better-looking buds anywhere. I would advise your correspondent to give his trees more water, which would help them but not save the buds this season. Next autumn and winter he should keep the border moist so that the roots can keep the tree and buds well charged with moisture, as a tree naturally is outdoors, as if the roots are dry then the buds will fall in the spring.—J. H.

HAVING read in the Journal several complaints under the above heading, I am sorry to report that similar cases have recently come under my notice with trees grown under glass, but the trees on the walls outside do not appear to be affected in the same way. I believe that deficiency of water at the roots at some period of their growth is the cause of the disaster, that too little attention is generally paid to the condition of inside borders after the crop is gathered, and that as a rule they are kept too dry when the trees are at rest. I should be glad to hear if your

correspondent's trees, both inside and out, are affected in the same way.—L. T.

HARDY PLANTS IN FLOWER.

CHRISTMAS ROSES.—The numerous species and varieties of *Helleborus* to which these belong are a most interesting and useful class of plants, especially *H. niger* and its varieties, which are so valuable on account of their white flowers coming in when everything is dull and cheerless outside. There are many other varieties of *Helleborus* which are much less generally known than *H. niger*, which, nevertheless, are very desirable for the hardy flower garden, withstanding wind and weather, and you stand and wonder how they managed to select such a dreary time in which to unfold their flowers.

Helleborus niger.—This protean species is to my mind indispensable in the flower border, and the variety *altifolius* is perhaps as distinct as any, with mottled stems and large flowers tinged with pink outside. Very much is written to little purpose as to the varieties, for after all we have not been clearly informed which is the typical form, and great efforts have been made to establish varieties, until we are left to wonder which are in the greatest confusion, the writers or the *Hellebores*. In the case of *H. niger* there are so many variations that, in my opinion, it is impossible to propose with certainty any characteristics for a particular variety which cannot be found in varying degree in other plants. Very recently I was looking over a large flat of some thousands of plants which were all imported at a low rate as *H. niger*; well, in that batch there is an astonishing amount of variation in leaf, form, size, colour, and spotting; indeed, I have no doubt in a few years when the plants are established all the varieties about which there has been so much writing recently might be selected from them. It is ridiculous to assume, after examining a limited number of cultivated specimens, that such and such a characteristic mark particular varieties; but when a large batch is investigated under natural conditions, such seemingly good points of difference are prejudiced by a numerous intermediate series, which makes us inclined to give up making many names and get as much variety as we can. Quibbling about varieties is unnecessary. Let us grow all we can of these most useful winter-flowering plants; and I will now add a few notes on a few other varieties of *Helleborus* which now give me great pleasure, and I think all growers of hardy flowers should have at least a clump of each of these varieties, and some enthusiasts would say a great many others.

H. atrorubens produces stems about a foot high, with from one to four flowers on a stem, each about 2 inches across, of a deep purple-red colour, slightly drooping. Very free-flowering and vigorous.

H. olympicus rubra has stems 12 to 18 inches high, freely branched with numerous flowers fully 2 inches or more across, tinged with reddish-pink outside; three of the sepals are white tinged with pink, the other two greenish white.

H. orientalis multiflorus is very free-flowering, about a foot high, the flowers from 2 to 3 inches across, reddish-purple at the back; three of the sepals are heavily shaded reddish-purple with the middle sea-green; the other two more or less of the same green, slightly shaded.

H. o. purpureus-punctatus is very free, with flowers about 2 inches across; three of the sepals purple-shaded and the middle portion thickly dotted with magenta spots. Some other varieties are out, but they are not so showy, and several others will open shortly.

CROCUSES.—The winter-flowering forms of this genus are extremely charming. Very bright are they in a dreary climate, peeping up often through a snowy covering. Several are out in flower.

C. Imperatorius grows about 3 inches high; the outer perianth divisions are pale buff, longitudinally striped with purple; the inner ones pale violet-purple throughout, contrasting prettily with the outer ones. This is most easily managed either in pots or planted out. I have now a charming pot of it. It varies a good deal; sometimes the inner divisions are very pale.

C. chrysantha is a little gem; the perianth limb is about an inch long, globular in form, with a dilation just above the tube; both inner and outer divisions of a deep golden yellow colour throughout.

C. Olivieri is similar in colour to the last; but there is no swelling at the top of the tube, and the flowers are not so rounded in form, the divisions being much narrower.

C. striatus is also another very fine yellow-flowered species of a deep ground colour, with a few paler longitudinal marks on the outer divisions. The flowers of this are large and very conspicuous.

C. minimus produces very small flowers about an inch long

or less, of a pale buff outside striped with purple. A little gem, just going over.

C. reticulatus is about 2 inches high, with long perianth limbs; the outer divisions deep orange-yellow striped with broad bands of chocolate-brown, making a very striking contrast, while the inner ones are all deep yellow. This is also a charming little species in clumps.

C. Sieberi is a variable species; but the form usually met with, as far as I know, grows about 3 or 4 inches high, the perianth limb being from 1½ to 2 inches long; both the outer and inner divisions of a clear purple-violet colour; the inner ones much broader, but rather shorter than the outer ones. It is a very showy species; sometimes the flowers are variously marked with yellow, when they are particularly striking.

MERENDERA SOBOLIFERA.—A curious and pretty little plant, with slender underground stolons, narrow oblong leaves and white flowers; the perianth divisions are very long and slender, the limb being about an inch long, oblong, upon long slender foot-stalks, which constitute the tube—a clear instance of the common origin of ordinary and floral leaves. This species may not be showy enough to please everybody, but it is one of those strange little plants which gratifies the enthusiast.

HEPATICAS.—These are charming old-fashioned favourites, enjoying peace and quietness as much as any plant, for it is only after remaining a few years undisturbed that good specimens can be obtained. In old-fashioned gardens they are frequently found in grand state, large clumps crowded with flowers. They are now, and will be for some time, flowering freely; the double red, single red, white and blue, as well as *H. angulosa* quite aglow with colour, but the double blue seems to be rather later, at least with me such is the case, as not a single flower is yet expanded. *H. angulosa* is a very fine species, with large sky-blue flowers, much finer than any of the *H. triloba* section, and it is very floriferous. The one known as *H. americana* is a very poor thing, the flowers being small and a wretched colour. There is a great diversity in the *triloba* section, some with red and white stamens, and with many shades of colour. One variety I grow under the name of *H. triloba Barlowi* is very fine, with a large circular flower of a pale sky-blue colour, in which it resembles *H. angulosa*, but the form of flower is very different. They are all well worth growing.—T.



HARDY FRUIT GARDEN.

Pruning.—Peaches, Nectarines, and Apricots should be pruned and trained now as soon as possible, for the buds are becoming so prominent owing to the mild weather as to render immediate attention to this matter imperative. This should bring the winter pruning to a close, excepting the Nuts and Filberts, which should remain unpruned till pollen is plentiful in the catkins and the female blossom is fertilised. It is sometimes advised to prune sooner and to leave a few catkins for pollen, but such advice is unsound from the fact that so many catkins sometimes perish from excessive wet weather that to leave only a few is to risk the loss of the crop. Wood for grafting should be inserted in moist soil to be kept plump and fresh, but do not cut back the stocks or branches that are to be grafted till the sap is in motion, then cut back and graft at once.

Old Fruit Trees.—Keep zealous improvers away from old fruit trees, and do not hastily remove old spurs or thin out branches. Many a healthy old tree is condemned as barren upon which fruit buds were plentiful enough in autumn, but when spring comes round hardly a bud has escaped the ravages of the bullfinches. Keep down such pests, see that the trees are sheltered from cold winds, replace exhausted soil about the roots with that which is fresh, sound, and fertile, and you may reasonably expect a crop of fruit in every favourable season.

Profitable Nut Culture.—We happen to have some soil so thin and poor that fruit trees barely exist in it. A trial of Nuts and Filberts in it affords a curious and important result, pointing unmistakably to handsome profits for a trifling outlay. A dozen plants of each sort were planted in it without the addition of any other soil or of manure. Red Filbert exists, but marks no appreciable progress. Cosford Nut attains a moderate degree of vigour, and bears a proportionate crop of its excellent thin-shelled nuts. Kentish Cob makes a sturdy and tolerably vigorous growth, and yields fair crops in favourable seasons. Pearson's Prolific is singularly robust and vigorous, most of the trees being fully 30 feet in circumference, and they are almost invariably laden with an abundant crop of nuts.

FRUIT-FORCING.

VINES.—*Early Houses.*—Tying, stopping, and thinning in early houses must be followed up, not allowing anything in those respects to get into

arrears, as it will tell later on in the swelling and finishing of the crop; and do not allow surplus and ill-shaped bunches to remain until the berries have swelled considerably, as that represents so much loss to those that are retained for the crop. Avoid overcropping and strive for quality in preference to quantity. Grapes vary so much in form of bunch and size of berry in different varieties that no definite rule can be laid down for thinning. Young Vines as a rule produce loose bunches, and will only need to have the small berries taken out—*i.e.*, presuming the shoulders are properly tied up; but old Vines, especially when spur-pruned, give close compact bunches, and require severe thinning to prevent binding when ripe; at the same time the thinning must not be so severe as to give a loose appearance, as it is important that the bunches preserve their form when on the dishes. Muscats and other shy-setting varieties should not be thinned sparingly until the fertilised berries are taking the lead, the unfertilised being readily detected by their small increase and slenderness of the footstalk.

Succession Houses.—Disbudding and tying in houses started in December must be attended to, being careful in bringing the shoots down not to snap them at the base. Any that are stubborn will be best brought down by degrees. Syringe freely on fine days, and if fermenting materials are not used in the house damp the floor and borders with clear liquid manure in the afternoon—*i.e.*, at closing time, as an ammonia-charged atmosphere is invigorating to the Vines and is one of the best preventives of red spider. With the Vine shoots an inch or two long, raise the night temperature to 60°, and 5° to 10° rise by day, ventilating from 70°, allowing an advance to 80°, closing at that temperature early along with a moist sweet atmosphere.

Late Houses.—In houses containing Vines of such varieties as Alicante, Lady Downe's, Gros Colman, &c., that have been brought into the way of starting early to insure to them a long season of rest, all painting, cleansing, and top-dressing must be brought to a close. If the outside borders are not considered satisfactory, lose no time in rectifying errors or defects in drainage or compost. Remove the surface soil down to the roots, and if these are deep raise them carefully and lay in fresh compost nearer the surface. Good turfy loam, with an admixture of old mortar rubbish, charred refuse, and crushed bones at the rate of about 20 per cent. formed into a border 6 to 8 feet wide and 2 feet deep, resting on a bed of drainage 12 to 15 inches deep, with a drain to carry off superfluous water, will give much better results than a wider and deeper border of indifferent cold material. The chief after-consideration is mulching with good manure from early May, and drenchings with tepid water when the Vines are in active growth.

CUCUMBERS.—Fresh soil appears to work wonders with old plants; hence any that are showing signs of exhaustion should have the old surface soil removed, picking it out from amongst the roots without disturbing them much, supplying fresh lumpy loam to which has been added a fifth of thoroughly decomposed manure, having had it in the house a few days to warm previous to placing it about the roots. Water moderately with tepid water to settle the compost about the roots. Attend to the removal of superfluous and ill-shaped fruit. Tie the young shoots to the trellis and avoid overcrowding, stopping about one joint beyond the fruit, or allow more extension if there be room. Remove bad leaves as they appear. If there be any red spider remove the worst infected leaves and coat the pipes thinly with sulphur brought to a thin cream with skim milk, but be careful not to overdo it or the fumes of the sulphur will injure the foliage. Maintain a bottom heat of 85° or 90°, give air on all favourable occasions with care and judgment, and close early, damping the floor so as to cause a moist genial condition of the atmosphere.

Planting.—Young plants raised from seed early in January will now be fit to place out. A ridge of soil about 2 feet wide at base and 1 foot at top the lengthwise of the bed will be sufficient to plant in, and should be in the house a few days to get warmed through before the plants are put out. Press the soil firmly around each plant, placing a stick to each and securing to the first wire of the trellis. The heat and moisture are the same as for old plants.

Plants in Pots.—Not having a house suitable for growing plants in beds a few good fruits may be had from an ordinary span-roofed plant house kept at a stove temperature. Pots 15 to 16 inches in diameter are most suitable. Drain well and half fill with a compost of three-parts turfy loam and a fourth of well-decayed manure, dry, or at least free from worms, and about a sixth of charcoal. Place the plants in the pots, not making a hole for the roots, but draw the soil from the sides of the pot up round them. A stick can be placed to each and tied to the wires, and when the plants reach the wires secure to them and stop the shoots when a few inches of growth has been made, training afterwards as space will allow. The buds or growths from each leaf should be rubbed off when showing up to the height of the trellis, but the leaves may remain for a few days later, removing them from the upright stem by degrees as the plants elongate and from the base upwards. When the roots appear on the surface add a couple of inches of fresh soil and so on, and when the pots are fairly filled with roots give copious supplies of weak liquid manure not lower in temperature than that of the house.

MELONS.—The plants that were placed out in hot-water pits, instead of shifting them into larger pots, as is advisable when they are intended for trellises, are making steady sturdy growth, and to keep them sturdy should have a little air in favourable weather. Plants that have been shifted into larger pots and grown on until they are a foot to 15 inches high for transferring to hillocks or ridges in the Melon house, will be ready for putting out. Press the soil firm around the roots and endeavour to obtain quick thoroughly solidified growth. A top heat of 65° to 70° at night, or 5° less on cold nights, 70° to 75° by day, with an advance of 85° or 90° from sun

heat, admitting a little air on all favourable occasions, and closing the house early with a moist genial condition of the atmosphere. Stop the plants when they have extended about two-thirds across the trellis, removing every alternate lateral on opposite sides of the principal when quite young, and all up to the trellis from the base. Sow for succession, keep a sharp eye on the lining of dung-heated frames, renewing when needed with sweetened material, of which a good stock should be kept by throwing into a heap fresh materials at intervals.

PLANT HOUSES.

Crotons.—Young plants that were rooted in late autumn will now need attention, and should be transferred into larger pots without delay. Where plants of fair size are appreciated in 7 or 8-inch pots as single specimens for room-decoration, select those for this purpose that were the leads of plants and well furnished with bold highly coloured foliage to the surface of the soil. Many of the narrow-leaved varieties are best for room decoration in 5 and 6-inch pots. When good well-developed plants are required for this purpose it is essential that the portions selected for rooting should be well developed and then rooted without losing their leaves. Many Crotons, when large plants are not required for the stove, are most desirable, and display to the best advantage their natural character when grown on without being stopped. This is not the case with smaller-foliaged varieties after the old Croton variegatus type, which should be stopped when inserted by removing the centre, and then allow three or four shoots to extend to form small bushes. However, plants well coloured with a single stem about 1 foot high are valuable for a variety of decorative purposes. If large specimen plants are required select dwarf strong healthy plants and pinch out their points as soon as the roots are advancing in the new compost, which should consist of good loam, a little soot and bone meal, with sufficient coarse sand to render the whole porous. If practicable plunge in bottom heat for a time after potting. Another batch of cuttings should be rooted, cutting down plants that are growing too tall for the decoration of the stove or for any purpose for which they are required. Use a little lighter compost for these—say one-third of peat, the soot being dispensed with; a little sand should be placed in the centre of the pot for the base of the cuttings to rest upon. Water after insertion, and plunge in bottom heat in the propagating frame, and keep close until rooted.

Dracenas.—Heads that were rooted at the same time as the Crotons may now be transferred into larger pots, the size of pots depending entirely upon the purpose for which the plants are required. Some grand plants can be grown in 6-inch pots, the size in which ours are grown for room-decoration, while that for the stove will when ready be transferred into others 2 or 3 inches larger. Small plants that were raised from stems and are now well established in 3-inch pots should be transferred into others 2 inches larger. Use for a compost two parts fibry loam, one of peat, and one of leaves and decayed manure, or better still, old mushroom-bed refuse in which leaves has formed a part; a little charcoal may be added and sand. Plunge in bottom heat until root-growth commences. Plants that have been used and have become unsightly may be cut up for stock. The root portion of the stem will form plants the quickest, and are not so liable to decay as the stem; the latter may be used if sufficient cannot be obtained from the former. Place them in sandy soil in pans, and stand in heat until they commence growing and rooting, when they can be potted singly. *D. gracilis* and *D. rutilans* are two of the best green varieties that can be grown for room-decoration. The last does well in a greenhouse temperature.

Solanums.—It will not be difficult to obtain a number of cuttings from the plants in the conservatory, the young newly made wood is the best for this purpose when quite soft. If taken and inserted in sandy soil and placed in heat in a close frame or in a bellglass they will soon become rooted and ready for potting. After the plants are rooted and potted singly, treat them liberally until they are bushy, ready for 5 and 6-inch pots, and can be placed in cold frames. Plants raised from cuttings are preferable to seedlings, as they bear more and finer berries. In order to obtain good plants in a season an early start should be made. Old plants that have been in the conservatory should be pruned close back, and when they have commenced growth reduce the balls by one-half and place them again in the same size pots. A good place to start these plants in is an earlyinery or Peach house.

Heliotrope.—Insert a batch of cuttings to be grown on for decoration in the conservatory. Standards or bushes that flowered during the autumn, and have since been resting, may be partially pruned and introduced into gentle heat, when they will soon break into growth, and in due time be useful again for the conservatory. Young plants struck in autumn and kept in small pots up to the present time may now be placed in 5-inch pots, and grown on close to the glass in a temperature of 50° to 55° at night. After the roots have commenced growing ventilate daily if the weather is favourable to maintain a dwarf sturdy growth. Loam, leaf soil, and a little decayed manure and sand will suit these plants well.

Petunias.—A batch of cuttings from old plants kept for the purpose should be inserted in sandy soil and placed in heat to succeed those struck in autumn and established in 3-inch pots. These should be bushy little specimens, and ready if properly attended to for 5-inch pots. The shoots may be pinched after the plants have started growth in the pots in which they have to flower, until they possess sufficient shoots to form bushy little specimens, when they may be allowed to come into flower. Use the same compost, and grow them under the same conditions as the Heliotropes.

Fuchsias.—Plants that have been at rest should be started. Give a little water at the roots, and place the plants in a temperature of 50° where they can be syringed two or three times a day. Place young plants

struck in autumn, and now established in 2-inch pots, into 4-inch pots, using a light compost. Supply each after potting with a small stake, and place them in the same house as the Petunias.

THE FLOWER GARDEN AND PLEASURE GROUNDS.

Bedding Plants to be Propagated.—Where the stock of such plants as Ageratums, Heliotropes, Koniga maritima (Alyssum variegatum), Iresines, and Coleuses is rather limited, in many cases it will be advisable to commence propagating them at once. Take off the soft-growing tops, trim to a joint, and dibble them in thinly either in well-drained pots or boxes filled with light sandy soil, the pots to be plunged in the propagating frames and kept close till struck, and the latter stood on a hotbed and covered with strips of glass. The cuttings should be watered in, but subsequently little water will be required, and if damping results either wipe the glass dry or uncover the cuttings for about an hour every morning. Pick off any decaying leaves and shade from bright sunshine. When the cuttings are struck gradually expose them to more light and air, and make more cuttings from the tops when these are strong enough, the plants to be placed in pots or boxes, using good soil, when they are breaking after this topping. Proceeding in this manner a few dozens of plants may be increased to thousands by the time they are wanted.

Zonal Pelargoniums.—These have damped badly this winter, and a considerable number will have to be struck this spring. Hard half-ripened tops do not strike root readily, and in order to secure the requisite number of softer cuttings, those to be increased should be introduced into a gentle heat. The shelves of a newly started vinery will suit them, and the cuttings later on will strike freely if the pots are placed on the shelves over the hot-water pipes. The golden and silver variegated sorts are the most scarce, and luckily the spring-struck plants of these are usually the most effective during the summer and autumn months. Prior to potting or boxing off the stock of Pelargoniums, and supposing there is no necessity to strike the tops, it is advisable to take out the points of the plants, and when they are breaking is the time to repot them. All ours, when planted out, are kept pegged down over the beds, and those who also follow this practice are advised not to stop the young plants, as the more spreading they are the better they fill the beds.

Sowing Seeds.—Seed of tuberous-rooted Begonias, Echeveria metallica, Pentstemons, Antirrhinums, Grevillea robusta, Cannas, Acacia lophantha, Chamæpeuce diacantha and C. Casabonæ must be sown early and the seedlings grown quickly in order to have them of serviceable size when required for planting out. The Begonia and Lobelia seeds are the most minute, and for these well-drained pans should be filled with sifted soil consisting of equal parts loam and leaf soil, with silver sand freely added, a little of the roughest soil to go over the drainage, the fine soil to be made rather firm, and the surface quite level and faced with a little sand. About an hour prior to sowing the seeds water the soil through a fine-rose pot, and when the seed has been thinly and evenly distributed over the surface lightly dust over a small quantity of sand, cover with glass, and stand the pans on a brisk hotbed. Shade heavily till the seeds have germinated, and if at any time it is necessary to moisten the soil it must be done very carefully, either by partially plunging in tepid water or through a fine rose, or the seeds will be dislodged.

The seeds of Echeverias, Pentstemons, and Antirrhinums being also rather small, should not be buried deeply; in fact they are best treated similarly to the Begonias, care being taken that they be kept uniformly moist and closely shaded till they have germinated. Remove the shading directly the seedlings are seen, and gradually expose the pans to more light.

Grevillea robusta and Chamæpeuce seeds should be lightly covered with fine soil, and the pots or pans plunged in a brisk and moist bottom heat. The seeds of Acacia and Cannas are usually very hard, and seldom germinate satisfactorily unless previously softened in rather hot water. If the evaporating troughs over the hot-water pipes are kept constantly full the seeds may be soaked in these for a few hours, or till they have swollen considerably; or if this plan is impossible or thought dangerous, place the seeds in bottles of water, and plunge these in a strong hotbed for at least twelve hours. The seeds being softened, they should be sown thinly in pots of light soil previously warmed, watered with warm water, and plunged in a hotbed, the seedlings eventually to be potted off singly into 3-inch pots, and receive a shift before they become root-bound. The roots of Cannas, after they have been started in heat, divide readily, but it is not advisable to start them yet unless the stock is too limited.

THE BEE-KEEPER.

SWARMING VERSUS NON-SWARMING SYSTEM.

INFORMATION gathered from all parts and from every class of bee-keepers on the above subject would indeed be most valuable. On page 53 a correspondent from Co. Down, after setting forth his own views and opinions on the matter asks, "What do others say?" We will endeavour to reply to his invitation by stating what deductions we have been able to draw from our experience in trying both systems.

If asked to give a verdict in a few words we should say, "Both systems must be employed together." The bee-master must act according to his own judgment, which will depend

entirely upon various contingencies caused either by locality, season, condition of stock, or even by quite unforeseen accident of the moment which may entirely change the system upon which a particular hive has up to that moment been managed. It is quite impossible to lay down any hard-and-fast rule for the government of a single hive, or of any collection of hives. Advantage must be taken of every opportunity offered by, for instance, an early warm spring, when stocks may be increased to advantage, and supers fill well afterwards; or of the extraordinary breeding powers of any particular queen, or again of the proximity of perhaps some acres of a particular crop which a farmer has placed nearer the apiary than usual; in fact, cases can be multiplied *ad lib.*, which will only be seen and seized by the bee-keeper after experience has taught him many lessons.

We kept bees for many years in a locality similar so far as the production of honey goes to that of Co. Down. There we had to depend entirely on a short season of plenty during which we expected our supers filled and the extractor to be constantly at work. This glut usually sets in about the first or second week in June, and was all over in about three weeks. In such a neighbourhood it was impossible to carry out a strictly swarming system, for the swarming mania usually set in in the midst of the honey harvest. Before newly hived swarms could have well got into supers the flow of honey would have ceased, and both stock and swarm would have been profitless for the season. Our habit was to drive out swarms from the most forward hives towards the end of May, and by stimulating these swarms and by the use of full sheets of foundation to build them up quickly so that the batches of young bees were hatching out just at, or a little in advance of, the advent of the honey glut. Our best supers were often obtained from these swarms. The stocks from which these swarms issued soon had fertilised queens, and invariably good vigorous ones. When we knew the queen to be fertilised we took another weaker stock having an older queen, and having destroyed this queen we united its bees to those of the driven stock, placing the young queen in possession. We then doubled the stock by placing the hive from which queen and bees had been taken on to the top of the swarmed hive, first placing all frames with drone comb on the top and the worker brood below. We kept all honey slung out from the lower combs, giving the young queen every scope to fill up the cells with eggs before the glut of honey set in. We used queen-excluder zinc between the hives.

When the harvest commenced abundance of room had been provided above since nearly all brood had hatched out, if we had been obliged to place some there. A powerful lot of bees was prepared to pounce on the nectar, and the slinger was busy every other morning, extracting every drop of honey from the top batch of combs. We always found early morning the best time to extract, the honey had lost much of its water by evaporation during the night, and required little ripening. In one or two instances we caged the queens of stocked wishing to swarm just before the harvest, but we did not find this plan answer. Two queens we remember finding dead in the cages, and both stocks prepared for swarming with a fresh batch of queens ready to hatch. As a means of obtaining a great weight of slung honey in a short time there is nothing like doubling, and by making sure of a young queen at the head of the doubled stock, that stock nearly always does well for the next season.

To a certain extent the non-swarming system may be carried out, but where the bees are very forward we think that more can be done by taking the first early swarms and doubling weak stocks. Our tactics, however, will be very different in our new locality. With hundreds of acres of Heather within reach of our bees we shall not be driven to such straits as formerly. Later swarms may now be taken, and if too late for the first harvest from fruit and forest trees, they may do wonderfully well with the Heather honey. But our aim will be now to get supers filled. It is not easy to extract Heather honey unless slung immediately after storing. Sections must be the order of the day now, and all our devices must be to compel our bees to so work as to give us the greatest possible quantity of honey in the comb. Whether honey be required in the comb or for the slinger, the aim of the bee-master must be to force the bees to put the honey where he requires it. If the bees have nowhere else to put it when honey is abundant they necessarily must place it where he wishes. Therefore he should use his utmost endeavours to try all sorts of schemes to get the brood nest full of brood and eggs in all stages, just allowing the bees space for a sufficient supply to provide them whereon to live, just at the time he knows the honey glut will set in, then only let him keep his supers warm and conveniently situated, and the honey must be put into them if it can be collected.

After all, our capricious climate may spoil all. Should a

period of wet cold weather set in and the harvest fail, well then the bee-master must live through another winter on hopes and not on honey, and more than that, he must be liberal in his supplies of artificial food, and feed up his carefully augmented army until they are fit to go into winter quarters. "Comber" seems to have done by accident exactly the same thing we used to practise as above explained. He found that the stock from which a swarm issued, and whose queen entered a strange hive and was killed, made a good honey harvest, through having a virgin queen at its head just before the glut set in. Where an increase of stocks is not desired the non-swarmer system may be thus carried out invariably to the bee-keeper's advantage. Plenty of honey will thus be obtained, and hives with young and vigorous queens continually kept over to the next season.

Like "Comber," we have generally found that a prime swarm returned, and the queen cells simply excised, was either still bent on swarming again after preparing a fresh batch of royal cells, or that they sulked for days after, and often in the end lost much of the precious honey season. It will be seen from our remarks that we do not believe that a strictly non-swarmer system can be carried out. In former papers we have shown how bees can be kept with a minimum of the desire for swarming, and how we induce them to take to supers, and therefore we will not go over that ground again, but only say that those who do not wish for swarms must be ever on the *qui vive* to adopt the many means which offer themselves at the right moment and in the right way. And one word more. Swarming is a natural habit with bees, and there is not a doubt that in localities favourable to honey-getting, in the end the most profitable method of keeping bees is to allow strong early hives to throw off a prime swarm, and the stock hive with its colony will produce more than any single stock managed on the non-swarmer system.—P. H. P.

TRADE CATALOGUES RECEIVED.

- J. C. Schmidt, Erfurt.—*Catalogue of Flower and Vegetable Seeds.*
 E. G. Henderson & Son, Maida Vale, London, W.—*Catalogue of Vegetable and Flower Seeds.*
 W. P. Laird & Sinclair, Dundee.—*Catalogue of Vegetable and Flower Seeds.*
 Thos. S. Ware, Hale Farm Nurseries, Tottenham.—*Catalogue of Choice Flower Seeds.*
 C. Pocock, Wincanton.—*Catalogue of Choice Seeds.*
 W. Atlee Burpee & Co., Philadelphia, U.S.A.—*Catalogue of Farm and Garden Seeds (illustrated).*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (E. M. H.).—Johnson's "British Ferns," published at this office, price 3s. 6d., would interest you, and Hibberd's "Fern Garden," published by Groombridge at the same price, would also be useful. (W. H.).—You might obtain the following works:—Henslow's "Botanical Dictionary," published by Groombridge & Sons, 4s.; Lindley's "Descriptive Botany," published by Bradbury & Co., Bouverie Street, Strand, 1s.; and if you desire a more elaborate work on botany procure Hensley & Masters' "Elementary Course of Botany," published by Van Voorst, London, price 15s. (M. W.).—There is no work published on the subject you name, but full cultural notes have been given, and others will doubtless follow, in our columns. You will find useful information in our Kitchen Garden Manual, which can be had post free from this office in return for 4½d. in stamps.

Cypripedium Leaf Injured (L. T. K.).—Two causes may have contributed to the rusty appearance of the foliage—first, the employment of water containing some injurious substance, and placing the plants in too low a temperature. The former is probably the chief cause, as the injury seems to be confined to the lower portions of the leaf where the water would accumulate in the axils. Rain water is the best, and very little will be needed on

the foliage at this time of year. The temperature should not be less than 55°, and a shady position is preferable for most Cypripediums, as for other Orchids which do not possess pseudo-bulbs.

Garrya elliptica Fruiting (J. S.).—It is rare for *Garrya elliptica* to produce fruit, as it is dioecious—that is, bears the male and female flowers on different plants, and the male plant is the one chiefly grown. Are you sure that your plant is the true *G. elliptica*?

Moving Rhododendrons (J. N., Meath).—No shrubs transplant better than these, and they may be had from a nursery any time from October until the buds commence swelling in the spring. They may be dispatched safely at this season of the year, provided the roots are kept quite moist in transit.

White Cinerarias (G. Snow).—It is not uncommon for white-flowered varieties to be produced from seed, and we have seen many such flowers as those you have sent to us. We do not mean that white varieties are produced from every packet of seed, and we think they are not so numerous as they were some years ago, but they exist nevertheless.

Shallots and Potatoes (J. W., Keighley).—There are no better Shallots than what is known as the small common Shallot and the large Brown. These will keep as long as any so-called "Long Keepers" when the bulbs are well ripened, harvested in good condition, and stored in a cool place. They are sold by nursery and seedsmen, and their price can be found in catalogues. We have not grown "Mackenzie's Pride" Potato; if any of our readers can describe the cropping, keeping, and cooking qualities of this, or McKinlay's Pride, we will readily publish them.

Catalpa Wood (J. H.).—The wood of the Catalpas is very light, but of a pleasing greyish-white colour, and has a fine texture. It requires to be thoroughly seasoned, and is then reputed to be durable, taking a brilliant polish. No doubt you might have many articles of domestic utility constructed from the tree when the wood is properly seasoned.

Coating Hot-water Pipes (Inquirer).—You acted very imprudently in allowing an "oil man" to decide on a matter of this kind. If he had understood the subject he would have known that the fumes of black varnish are injurious to the foliage of tender plants. You have, however, made the best atonement you could by mentioning the evil results that have followed as a "warning to others." To your inquiry "What shall I do?" our advice is, Clean off the varnish with a strong solution of caustic potash, which you can get from your oil man; and if you desire to have the pipes black give them a thin coating of lampblack and linseed oil, heating them gently at first, and they will have a neat appearance, while the plants will be safe. Thanks for your enclosure.

Begonias for Winter (An Old Subscriber).—All the species and varieties may be propagated by cuttings, and may be inserted at any time when a brisk bottom and top heat, say of 75° to 80°, can be maintained. The precise time for insertion must be determined by the size of plants that you desire. If you wish to have large specimens and have heated structures for growing the plants, you may insert the cuttings during February and March. If smaller plants are coveted, May and June will be soon enough for propagating, and a cool frame kept close will be suitable for the plants during the summer. An ordinary mixture of loam, leaf soil, decayed manure, and sand is suitable for growing these plants. The old plants can either be thrown away or repotted after they have flowered. Young plants are usually the most satisfactory.

Culture of Heterocentron roseum (Idem).—Very moderate care will enable you to succeed with this plant, as it both grows and flowers freely in an ordinary stove or warm conservatory. A light compost of turfy loam and peat in equal parts, with sufficient sand to render it porous, is the most suitable, and a small proportion of old well-decayed manure may be added if especially strong plants are desired. The pots must be carefully drained, as abundance of water will be needed during the summer, and when the plants become old and it is not convenient to shift them into larger pots, occasional supplies of weak liquid manure will assist them greatly. The branches may be cut in when they become too straggling, but little attention will be requisite in this respect. It can be increased by cuttings of the young shoots in spring inserted in sandy soil under a bellglass or in a propagating frame.

Culture of Hellebores (H. T. H.).—A deep, fertile, rather strong, yet porous soil is enjoyed by these plants, and a position shaded from the mid-day sun. For choice we prefer a border that is shaded by a wall or distant trees at mid-day. It is important, too, that the roots be not spread out near the surface, but as far as possible they should be made to point directly downwards, the same as Carrots. This hint we had from a person who grew these plants by the acre and sold the flowers in thousands. In growing the plants in pots, place them in a compost of good loam with a little decayed manure and wood ashes added. Plunge the pots over their rims in a partially shaded position in your garden and water the plants liberally during dry weather, giving them weak liquid manure occasionally when they are in full growth. The morning sun and afternoon shade appear to suit them admirably. The foliage should be well sprinkled, and the ground surrounding the plants be made moist during the evenings of sultry days in summer. A good time for dividing and planting is immediately after flowering.

Apple Trees Cankered (J. H.).—We are obliged by your letter and enclosures, which shall have our attention. The question for you to determine is this, Are the insects the cause of the canker or the result of it? This you can determine by experiment. Your theory is not new. As regards hundreds of trees and thousands of cases of canker that we have examined, we are convinced we indicated the cause, and think we have given and can give reliable and practical information, however unsatisfactory it may happen to be in any special case and to any particular individuals. Most welcome, however, will be the results of your researches, as the object of all is the same—the elicitation of truth.

Clerodendron Balfourianum (W. G.).—It would have been better if your plant had only now been going to rest for flowering about the time you mention. Had this been the case we could have told you exactly the time it should be started for flowering when you require it to do so. If the wood is thoroughly ripe, and after the plant has received a good rest, it could be

had in full bloom in ten weeks if grown in a proper stove temperature. If started into growth at this season of the year you might allow a fortnight longer. Keep your plant resting as long as possible, but not in a lower temperature than the one you name, or else it may refuse to start into growth at all. If your plant is in a pot sufficiently large repotting will not be needed; but as soon as the plant shows signs of growth top-dress it with some rich material, but before doing this give the plant a good soaking of water, and remove as much of the surface soil as possible before adding new. After this the trellis should be made secure, and the flowering wood of the plant tied evenly all over it, removing only the unripe ends or dead wood. The plant should after this be placed in a position where the syringe can be employed twice daily, and water administered as may be required, carefully at first until about an inch of wood has been made, when weak stimulants may be given. When the plant naturally starts into growth you must grow it in an intermediate temperature or it will flower too early for you.

Hibiscus sinensis (Idem).—This is a very useful plant for flowering in the stove, but it is not one of the best for growing for purposes of exhibition. You have done right in pruning your plant close in and starting it in brisk heat, as by this means only will you be able to have it in bloom by the time you mention. When your plant has commenced growth potting should be done if needed. Turn the plant out of its pot, removing carefully a portion of the old ball, then place it in the same or a larger pot, using a compost of good fibry loam, a little leaf mould, and about a seventh of decayed manure, with sufficient sand to make the whole porous. After potting plunge in bottom heat, and water carefully until the roots are growing freely in the new compost. The plant should be grown as close to the glass as possible to keep the growths dwarf and sturdy, instead of drawing up tall and weak. It is important if you are to flower this plant profusely that you keep it in as light a position as possible to solidify the growth as it is made. When the shoots have attained a length of 6 inches to 1 foot in length they must be tied out to form the base of the specimen. The strongest may be brought lowest so as to give the weaker ones a chance. If any shoots take the lead of the rest pinch them until your specimen is well furnished with shoots all in the same stage of development.

Determining Angles of Glass Structures (J. W. V.).—The accompanying drawing will enable you to make a very simple instrument—a quadrant,

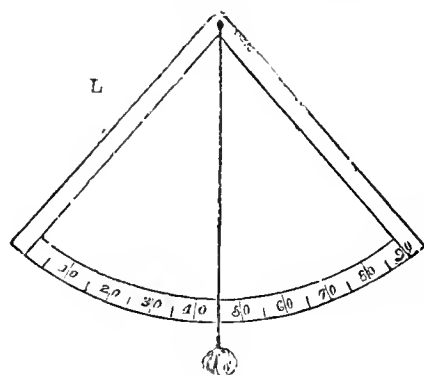


Fig. 23.

or quarter of a circle, by which the angle of any roof can be at once determined. Fasten a string with a leaden plummet through a hole in the corner opposite the arc or portion of a circle. Divide this arc into 90 equal parts; place the side marked L against the roof inside, and the string will hang opposite to the mark which is the angle of the roof; in the drawing it marks 45°. There is no work published such as you appear to require.

Insects in Mushroom Bed (J. A.).

—We have never before heard of red spider attacking a Mushroom bed, and rarely of wireworms; these, however,

may be in the soil that has been applied. We know of no better remedy than a solution of salt: 2 ozs. of common salt, dissolved in a gallon of water, and applied in a tepid state.

Camellia Buds Dropping (Idem).—Your house has been too warm for Camellias, and the soil has in all probability been allowed to get too dry at the roots of the plant; at any rate the root-action has been defective, and perhaps the air of the house has been too dry.

Peas for Exhibition (J. B. L.).—You omitted to state at what date you require extra fine pods, and no single variety can be relied upon at all times. You as an old exhibitor will admit that it is not wise to rely exclusively upon one variety, unless several successional sowings are made, as so much depends upon circumstances. Perhaps the best Pea for the greater part of the season, or say from the middle of July to the end of September, is Laxton's Evolution. This variety is not much affected by mildew, is very branching, and produces an abundance of long straight deep green pods, which are invariably well filled with fair-sized green peas. The much taller-growing Culverwell's Giant Marrow has larger pale green pods, well filled with very fine peas. It was the most generally shown last season, but the better coloured Evolution will most probably supersede it. By sowing Culverwell's variety in pots and planting out it can be had good near the end of June, and the season of those sown in the open generally extends from the middle of July to the end of August, after that time it mildews badly with us. Evolution under the same treatment is usually a little later. Either Telephone or Telegraph, which differ only in colour, the latter being the greenest, or Stratagem, if a more dwarf variety is preferred, may be relied upon to produce very fine pods, unsurpassed for the early shows, say about the middle of June. To have them early they also require to be planted out, and if sown in the open they are available from the middle or third week of June to the middle of July. Later, unless extra pains are taken, they mildew badly. For the late autumn months, or when Evolution has failed, Ne Plus Ultra and Reading Giant are the best. The latter produces the largest pods, but in other respects much resembles the extremely popular Ne Plus Ultra. All pay for liberal treatment in the shape of well-manured deeply dug ground, frequent supplies of liquid manure, and plenty of room. Overcrowding is one of the greatest evils in Pea culture whether for exhibition or ordinary purposes.

Onion and Carrot Grubs (A. A. T. T.).—It is very difficult to prevent the attacks of the Onion and Carrot maggots in gardens in which these pests abound. The insects pass the winter in a pupa state in the ground, and in this form are so well protected by their cases that it is not easy to destroy them. Ammoniacal liquor from gasworks, and solution of paraffin of the strength of an ounce of oil to a gallon of water, and poured over the ground, are more or less effective and also act as a manure. It is well to have Onion and Carrot beds as far distant as possible from where the crops were last grown and attacked. It is a good plan also to dig the ground deeply a day

or two before sowing, as then many of the pupa cases are placed so far below the surface that the flies cannot readily emerge from them, and thus deposit eggs for producing future crops of maggots. Very heavy dressings of lime and soot are also advisable before sowing. Deep drills drawn and filled with wood ashes, and in these sowing the seed, is a method that has been successfully adopted by some cultivators. Early Carrots sown very late, say in July, grow large enough for use, and often escape the attacks of the pest that ruins crops sown in April.

Sewage Refuse (Vectis).—We cannot tell you even roughly the constituents of the matter "after the liquid portion has flowed into the sea," as so much depends on the filtration; but we are tolerably certain that the best part of the sewage for your purpose is lost. Professor Way has not a high opinion of the manurial value of such deposits as those to which you refer. He regards the solid matter of sewage as "only the woody or fibrous refuse of solid excrement, while ammonia and the more valuable substances were retained in the liquid form. It had been said that the liquid left after the removal of the insoluble portion of the sewage, was 'inodorous, tasteless,' and might be thrown into the river; such a result might fulfil sanitary but not agricultural conditions. No plan was efficient that does not include, in the solid matter obtained, the various salts dissolved in the original liquid. The milk of lime employed in Higgs' process clears the sewage from colour, but leaves in it nearly all the organic matter. London water, too, was hard, already holding carbonate of lime in solution; when quicklime was added, a large precipitate, consisting of double the quantity of chalk, was thrown down, and thus increased, by so much comparatively inert substance, the solid matter obtained, 30 grains of chalk being obtained in this manner from every gallon of sewage liquor. He would prefer separating the sewage matter by itself; but even that would only contain from 2½ to 3 per cent. of ammonia, and would not pay. He recommended farmers to avail themselves of the strongest and best manures, as occasioning less expense in the original cost, carriage, storing, and application. Many methods had been proposed to facilitate the mechanical separation of sewerage matter and to deodorise it; but in all these the valuable salts were left behind. Peat and other charcoal did not arrest ammonia, as had been supposed, but absorbed it as gas by a peculiar power of surface which the charcoal exercised; but water, having a tendency to unite with ammonia, washed this gas out again; charcoal, however, retained the solid matter and deodorised it, but did not separate the soluble salts. Liquid sewerage offered the largest prospect of success, as the whole of the manuring matter was, in that case, utilised." That is the substance of the teachings of an authority entitled to respect. We do not say that other methods of precipitation are similarly unsatisfactory, but we should hesitate to purchase such refuse as that alluded to as a manure for Vines. On this subject we adopt the opinions of an able writer and successful cultivator, that no better plan exists of manuring Vines than utilising sewage and urine; the one contains all the potash, the other the phosphates, and between them everything else plants of any description require. When such can be had no more economical or satisfactory plan can be pursued; all else that is needed is occasionally a little lime and plenty of water. When neither can be had we should employ bones, or, perhaps, better because more economical and likely to be equally efficacious, mineral phosphate, or other cheap phosphate to supply phosphoric acid. Where wood ashes were to be had we would not hesitate to rely on them for furnishing potash, magnesia, and lime. Failing that we would employ kainit, or a cheap source of potash, and apply quicklime sparingly. As for nitrogen, so long as we have sulphate of ammonia or nitrate of soda that need bother none of us. Possibly combination manure might prove more suitable and in the end more cheap. For instance, guano contains plenty of everything except perhaps potash; but it is of little or no use applying manure to Vine borders that do not abound in fibrous roots for absorbing what is given; and where there are no such roots they should be induced in the manner described in the Journal by Mr. Thomson a fortnight ago.

Names of Plants (J. B.).—*Pteris straminea*. (A. G. P.).—*Lonicera Standishi*. (W. H.).—1, *Zygopetalum Mackayi*; 2, *Garrya elliptica*; 3, Resembles *Biota aurea*; 4, *Cupressus macrocarpa*, but it is impossible to determine with accuracy the names of Conifers from such diminutive scraps without any particulars concerning their habit.

COVENT GARDEN MARKET.—FEBRUARY 6TH.

TRADE continues quiet, Grapes scarcely maintaining their value. Cucumbers lower. Kent Cobs stagnant.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 5 0	Nectarines	dozen	0 0 to 0 0
"	per barrel	0 0 0 0	Oranges	100	6 0 10 0
Apricots	box	0 0 0 0	Peaches	dozen	0 0 0 0
Chestnuts	bushel	10 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs	dozen	0 0 0 0	" dessert	dozen	1 0 5 0
Filberts	lb.	0 0 0 0	Pine Apples English ..	lb.	2 0 3 0
Cobs	per lb.	1 8 1 4	Plums and Damsons ..		0 0 0 0
Grapes	lb.	1 6 5 0	Strawberries	lb.	0 0 0 0
Lemon	case	15 0 21 0	St. Michael Pines ..	each	2 0 8 0

VEGETABLES.

	s. d.	s. d.		s. d.	d. s.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney ..	100	1 0 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 3
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	3 0 4 0
Brussels Sprouts ..	½ sieve	1 6 2 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6 2 0	" Kidney	cwt.	4 0 5 0
Carrots	bunch	0 3 0 4	Rhubarb	bundle	0 4 0 0
Cauliflowers	dozen	2 0 3 0	Salsafy	bundle	1 0 0 0
Celery	bundle	1 6 2 0	Scorzonera	bundle	1 6 0 0
Coleworts	doz. bunches	2 0 4 0	Seakale	basket	1 0 1 0
Cucumbers	each	1 0 1 6	Shallots	lb.	0 3 0 0
Endive	dozen	1 0 2 0	Spinach	bushel	2 6 3 6
Herbs	bunch	0 2 0 0	Tomatoes	lb.	0 3 0 10
Leeks	bunch	0 3 0 4	Turnips	bunch	0 3 0 0
Lettuce	dozen	1 0 1 6			



THE WELSH BREED OF CATTLE.

(Continued from page 98.)

WE will now notice the observations of another great authority as to the characteristics of the Welsh cattle; we allude to Mr. Thomas Rowlandson, who wrote the prize essays on the farming of North Wales in the *Journal of the Royal Agricultural Society of England* in 1846, and also on the farming of Herefordshire in 1853. We must therefore value his testimony, which has been so amply rewarded by the Council of the Royal Society. He says, when speaking of the Hereford cattle—"All observant persons who have travelled through the county of Hereford and the adjoining district of South Wales as far as Pembroke and the opposite coast of North Devon, must have been struck with the general resemblance in outline of the breeds indigenous to them; indeed the comparison may be carried further, for the Short horns of South Devon and the Sussex cattle greatly resemble the Glamorgans in all but colour, the most esteemed breed of the last-mentioned being black. A mixed black and brown, red and dun-coloured race of cattle, is found throughout all the southern Welsh counties, the whole greatly resembling in symmetrical appearance the true Hereford, varying only in colour."

Although we shall be now obliged to allude to the unprofitable management of various small farmers in certain mountain districts of Wales, this will only be done to give the greater effect in comparison with first-class management, to which we shall allude further on. The cattle bred by these small farmers are found throughout Wales on all the poorest districts, but are reared without much expense or care, and generally kept until they are three or four years old. They are then sold to drovers and dealers, who take them to Barnet and other fairs, such as Blackwater, and there sell them to the Norfolk, Essex, and other graziers, who feed them for the London market. On account of the method of rearing them they are small in size, but pay well when they are fed judiciously in the stalls or boxes on the best managed farms of the eastern and southern counties. These black cattle have ranged in price in the fairs at about three years old from £6 to £9 each, and the four-years old from £8 to £13 each, and are, when made up of prime beef, selling in the London market on account of their good quality and small size at the top prices of the day. About three-fourths of the lots sold at the fairs consist of oxen, and the other one-fourth of heifers. The heifers are seldom spared, but this is a mistake of the farmers who rear them, for it often happens that just as they begin to show the results of good feeding they are found to be in calf, and the high feeding expenses comparatively lost, as the animals would not be appreciated as milking stock.

As we have now shown the various ways in which the Welsh cattle are treated, both for milking purposes and rearing for profit, to be sold for fattening in distant counties of England, we propose to give a notice of a well-written statement which we find in the *Agricultural Gazette* of December 3rd, 1883, contributed by Mr. John Edmunds. He says—"We had heard recently much of the improved condition of Welsh agriculture. We were, we confess, rather dubious, as we had in remembrance some delightful journeys through different parts of the principality which had impressed upon us the idea that there was plenty of room for improvement in this respect. We had, of course, heard of Major Platt's zealous attachment to the movement so recently and so successfully inaugurated or revived, for the maintenance of the valuable, distinctive, and hitherto strangely neglected breed of Welsh black cattle, and we confess that we expected to see something out of the common in the herd of pedigree stock at Madryn Park (Major Platt's farm); but when we found that not only our most sanguine expectations in this respect had been exceeded, we were simply amazed. Madryn Park Farm is to be seen on the left, about midway between Llanfairfechan and Aber stations, on the line of rails between Chester and Holyhead. It is early in the morning, but things have evidently been astir for some time, and there is activity everywhere, under the apt direction and able supervision of Mr David Williams, the Major's farm steward, who is as

proud of the place as Major Platt himself, and to whose care and energy the success in no small measure depends.

Perhaps before we venture into the farmyard we may briefly review the movement now forcing itself rapidly to the fore under the auspices of the North Wales Black Cattle Society, with which Major Platt is so closely identified, and in the success of which he is so much interested. The real origin of the North Wales black cattle seems shrouded in some doubt. The fact was apparent that Wales had a breed of cattle peculiar to itself, cattle hardy as Welsh cattle ought to be, of good constitution, excellent as milk-producers, and, as experience now shows, profitable for exhibition and for the feeder's stall. Mr. Wm. Dew, editor of the "Society's Herd Book," in some interesting introductory remarks, points out how some thirty-five years ago milch cows were selling at from £4 to £7 each. We saw in the herd at Madryn Park a real beauty whose value had been decided by the fall of the auctioneer's hammer, at something not much below £400; it appeared to us likely that even this figure does not anything like represent her appreciable worth to her owner. "A real beauty, a queen indeed," we muttered half aloud when we were leaving the stall. "Yes, when she won the champion prize against all England, there was as much excitement as there was at the election." But this brings us to the rest of the herd of pedigree stock, which now numbers thirty-five head of cattle—all pictures. As we have before intimated, the pick of the cows is probably Black Queen, third, a beautiful beast, standing as square as a table; wide-chested, broad-backed, with tail like a whip lash, and head like a deer. But there are other cows that would satisfy the most fastidious critic, and arouse the admiration of those competent to judge.

The successes of the herd are historical. We may mention the following distinctions:—First prize at Bala, 1881; first prize at Bangor the same year; and in 1882 first at Corwen, Langefin, Towyn, and in the Champion class against all England. The bulls are both large and beautiful. Black Prince, second, now three years old, of the original Beddgelert breed, seems really nothing short of perfection, an opinion endorsed by his attendant, for he looks all loyal as he tells us—"Yes, indeed, sir, as quiet as a lamb, and wins all the prizes wherever he's shown." He moves him away majestically, and Prince Llewellyn fourth, steps into his place, a black prince, and another beauty. The bulls both stand firmly upon their short legs, as square in body as boxes, chests like engine-plates, and hides like silk. The expressive features and quiet demeanour of the faces—if we may use the terms—struck us much, and we approached without fear, and found them as docile as the attendant had said. Here, too, is a beautiful young bull, Rhys. At sixteen months old he has taken the prize in the open Champion class against competitors of all ages. We must hasten on, however. There are two bullocks coming up the yard moving in solemn procession, for a ton of meat cannot move itself swiftly if the means of locomotion are natural and unassisted. These are being brought into condition—one for Birmingham, the other for Smithfield—and are certainly arguments in favour of the North Wales black cattle as meat-producers. Here, too, are young bullocks full of play and power; big frames, upon which the beef will be hung in due time. Here again we have younger stock still, and calves of the present season—pedigree stock, and valuable treasures to perpetuate the reputation of their ancestors—a responsibility they seem quite able to sustain. Leaving the pedigree herd, we come to the stalls, in which forty feeders are leading lives of luxury, in blissful ignorance of the end—for they are intended for the Christmas sale. They are clean and comfortable in their well-kept quarters, and are really noble animals, each a mountain of meat."

We have been induced to close our account of the Welsh cattle with this long quotation, for it is so graphically written, that it is well calculated to leave a lasting impression upon the mind of the home farmer, and also especially upon the memory of young beginners in agriculture and stock-rearing.

WORK ON THE HOME FARM.

Horse Labour.—This has been somewhat hindered by the tempestuous weather which has lately prevailed. It was, however, fortunate that from Christmas up to the 20th of January nothing in respect of the weather occurred to impede the horse labour of the farm, and it has been employed beneficially in completing the fallow-ploughing, chalk-carting, manure-carting on to the Clover seeds, carting of manure and earthy composts on to the dry pastures and park lands. Much threshing of Barley, Oats, and drcge, also of some Wheat has been done, although the latter has in some cases suffered in condition by such early threshing, which is inadvisable, except in those cases where it had been stacked in fine, dry, and first-rate condition. In fine weather threshing corn and pulse crops should be done in order that all the animal power of the farm may be obtained at the busy period of spring to forward the cultivation

for Barley-sowing and other Lent corn, also the preparation of land in readiness for the planting of early Potatoes. We may also anticipate the uses and advantage of a full crop of roots now on the land, especially Swedish Turnips, which may be pulled and heaped on the land if required for folding off with sheep; if not, they may be carted away and stored as food for the cattle in the boxes or for young cattle in the straw yards, and in certain cases for dairy cows. When these roots are allowed to remain in the store heap long enough to throw out little yellow buds they may then be given to dairy cows without imparting any unpleasant flavour to either milk or butter. In the case of a full crop of Swedes being grown, as these roots are so plentiful and the sheep not requiring them all, two-thirds of the crop may be spared for the dairy cows; again, if on a field or fields not required at all for sheep-feeding, and the crop a full one, say of 20 tons per acre, two-thirds of the crop may be chopped and ploughed in, and one-third removed for the cattle on the farm. About 13 tons per acre is quite sufficient to produce a full crop of either Barley, Oats, or drege, according to the soil, taking Barley on the lightest land and Oats on the most loamy soils. In this way the season for sowing will not be delayed, as, though the roots were reserved for sheep-feeding, yet the crop of Lent corn will be superior to that sown after the roots as a whole having been fed off by sheep eating cake and hay in addition. This has been the result of every instance we have seen during the last eleven years. We therefore ask the home farmer, as Swedes may this year not all be wanted for stock, to try the plan we have indicated by ploughing 13 tons per acre of roots against another portion of the field fed off by sheep. This will give him an experience which may prove of great importance in the future as to buying sheep at high prices for the purpose of feeding and folding them on the land. If this plan is pursued with ordinary care, and taking the early part of the season for doing it, he will grow heavy crops of Lent corn without sheep and without losing money on the transaction, as much of this style of farming has done for some years past, if only the value of the food consumed is charged at very small cost for roots, &c., and at the same time saving 40 per cent. of the capital employed on the farm in the outlay for sheep, and also saving 20 per cent. in the labour of attendance upon them, to say nothing about losses from disease, or injury to the land being trodden into mud during the winter months, and seriously impairing the preparation for succeeding crops of Lent corn and Clover.

Hand Labour.—As the weather when open is favourable for the forking-out couch and weeds in the roots or seeds, let it be done by women if possible, otherwise by men, for it really is the best outlay for labour in the dead period of the year, because the couch destroyed by the hand labour done for 5s., would cost 20s. if done further on by horse labour. Showery weather in forking-out is no impediment, but it is adverse to horse labour in fallowing for cleaning the land at any season of the year. Trenching in the meadows should now be done, also constant attention is required in the water meadows by the successive changes of flooding, which it is the business of the drowner to carry out at certain intervals, and unless this is judiciously done the result will not be so beneficial as when regulated by the ordinary rules of irrigation.

Live Stock.—Nearly all varieties of Down breeds of sheep will now have lambs enough fallen, and also old enough to go upon root-feeding in the open field, except, perhaps, certain flocks of Shropshires, Oxford, or Sussex flocks on the hills, where the earliest lambs are not sought for or required. The food for young lambs is very important, for it is usual when reared on the breeding farms for them to run in advance of the ewes and live chiefly upon the greens of the Swedes. In some cases, however, on every tenth drill Rape is grown, which affords foliage of superior quality for young lambs, and just when learning to eat it is of some importance. In the case of the vale farms, where early lambs are required, it is a good plan to have all the roots heaped and a small fold in advance for the young lambs to feed in, without anything except trough food, in which case it is well to give them Carrots or Cabbage passed twice through Gardner's cutter and mixed with the best cake and bean meal; also give cake and corn, either grey peas or beans crushed, in troughs, and the best white Dutch Clover hay in chaff. This is very enticing to lambs by its aroma, for when well made and without Rye Grass of any kind, as we have saved it in some seasons as handsome as a sample of well-saved Hops, and smelling nearly as sweet.

CATCHING MOLES.

THE author of the little book described by your correspondent in page 44 is the true type of professional mole-catchers. They make a great secret of their business, and if questioned they nod and wink in a manner most mysterious. I know how difficult it is to catch a mole if we do not understand the way to set about it, but when once shown the *modus operandi* it is then as easy as "shelling Peas." I will relate briefly my experience. Soon after I left school my father had some marshland much infested with these little vermin. He set me to catch them. I procured some iron traps and went to work. I placed my traps between the hills and in those runs which were just beneath the grass, in which I occasionally caught one. My catches that spring did not average one a week. In June my father gave the bailiff of a neighbouring farm who understood "the trick" a gratuity to teach me. I met him one evening by appointment. He gave me only one lesson; the whole thing was changed, and before the end of that season I had cleared the marshes of the pests.

I will not conclude here as a mole-catcher should, but as I learned from my instructor in one lesson, now invite your correspondent to mentally accompany me on a mole-catching expedition, and I trust when we part he will know enough to soon rid himself of his troublesome little neighbours.

Here we are in a twelve-acre marsh. I have brought with me two or three iron traps, a common walking-stick, and an old sharp butcher's knife. Observe there are molehills in the centre of the field. We will examine

them. They are quite fresh. Here is a grip cut to drain off surface water running by the hills. I guess the mole has come up the grip to this spot. We will follow its course and keep our eyes open. Yes, here is a small quantity of earth thrown out to clear their run. Again another little cast in the grip. It is certain, then, the moles have their run in it; therefore we will follow it to the boundary ditch. We shall now find the run in the bank a little above the water-line. Shall we search to the right or left? We will look round before deciding. Here about three rods to the left and a little distance from the bank are more hills. Then we will search the bank to the left. Now if Nature has given us good eyes they will save trouble. There, look at that bare place on the gently sloping bank. Do you see, about 6 inches above the water-line, the ground looks slightly bulged? We will try with the walking-stick. After slight pressure it has gone through into a hole. With the knife we cut out a piece of earth. It is a main run and quite fresh. Shall we set a trap there? We will look round again, and walk to the second lot of molehills above the bank of the ditch. About 5 rods further up the ditch on the other side are more hills. Most probably the moles which work over the other side cross the ditch and come to this working. (They are excellent swimmers. I once shot one crossing the river Stour. My instructor informed me they continued their runs under ditches, &c. From my own experience I doubt that assertion.) Thence travel the run we have just found up the grip to the first lot of hills. We will therefore walk a rod or two higher up the ditch and search for the run between these three lots of hills. After three or four probings with the stick we discover the run. We cut out a piece of earth, making an aperture sufficiently large to admit a trap. A fine run, 3 inches in diameter, and the marks of their feet as fresh as possible. We will set a trap here, and are certain to catch all the moles frequenting the three workings.

Here is a trap and the iron to set it. We will first pass a string through the hole in the little piece of iron and tie it to the trap. This is a necessary precaution, or there will sometimes be trouble in finding the "setter" after it has been sprung. This trap, not having been used lately, or may be a new one, we will stick the prongs into the soft mud a few times to give it an earthy smell. Hold it carefully by the handles, and before we take hold of the setting iron we will make our fingers muddy. We set it so that a touch will spring it. Place it gently in the run. Be careful never to put your hands into the run. (I believe the sense of smelling is very keen in moles). If you are careless of this, you will find the moles will work round or under instead of going through your trap. Cut two pieces of turf to lay over the trap, making it snug, leaving only the handles visible, over which, to prevent your trap being either stolen or disturbed, throw a handful of long grass.

Before we part come with me to another working, which I have visited before. The hills were rather old, and the run to them had some grass growing in it. I did not set a trap, but stamped the run down by drawing my foot across it. Here is the place and there the mark of my foot as I left it. If a mole had come along the footmark would have been heaved again, therefore it will be useless to set a trap here.

The following extract is from the "Sportsman's Directory," by John Mayer, game-keeper:—"The mole is in some places, but more particularly in the north of England, called a wunt, and, contrary to most other vermin, lives chiefly underground, and does great mischief in gardens, &c. When you find they come, observe the outsiders for their angle or run; or, if there is a path in a field, it is very probable that they have a run across it, or they will frequently have one at a gateway. These are what are called the main runs, about 2 or 3 inches under the earth, and may easily be found by the heaving up of the earth, along which they will run ten times in a day. When you have discovered one of these runs you must tread in the earth tight, and when you come that way again see whether it is as you left it; and if you perceive a mole has been along, then set a trap, by which means several may be caught in an afternoon, these being their main roads out of one part of the ground to the other, for it will be of little use to set a trap in any other angles or runs. In spring, when they run near the surface of the earth, they make many different angles in search of worms, on which and chaffers they chiefly feed.

"In the spring, when you catch a she mole, rub her back part about the bows of the traps. Observe, when you have caught all that you perceive to move, you need only look round the outside of your fields, and keep some traps constantly going there, and they will lay hold of them as they come in and out. If you put some dead moles in the runs it will prevent their coming and keep your grounds free from these troublesome vermin."—EDWARD HARNETT, *Minster*.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1884. January. and February.		Baromet- er at 32½ and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Inches.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	deg.	In.	
Sunday 27	29.690	35.0	32.9	W.	41.3	44.1	34.7	42.3	31.5	—	
Monday 28	29.587	36.9	33.9	W.	39.8	44.5	32.8	72.8	29.2	0.170	
Tuesday 29	29.776	44.7	44.7	S.W.	39.0	55.6	35.4	72.8	29.4	0.014	
Wednesday .. 30	29.845	52.5	51.5	S.W.	42.1	55.5	43.7	62.6	43.3	0.222	
Thursday 31	29.832	49.6	48.9	S.	43.3	51.2	44.2	52.4	41.5	0.238	
Friday 1	29.473	45.9	43.8	S.W.	44.5	51.7	44.8	71.8	41.9	0.301	
Saturday 2	29.788	39.3	38.4	N.	44.0	46.8	38.2	64.2	39.2	—	
	29.624	43.4	42.0		42.0	49.9	39.1	65.6	36.6	0.945	

REMARKS.

27th.—Windy during night; slight snow shower at 10.30 A.M., then fair; lightning at 10.30 P.M.
28th.—Fine throughout; clear sunset, but little special colour.
29th.—Foggy in morning, then became very warm and fine.
30th.—Very close, with rain and wind.
31st.—Heavy rain in night, and raining nearly all day.
1st.—Fine morning; wet and wild in afternoon; fine evening.
2nd.—Overcast early, but nearly cloudless after 11 A.M.
Rather a wild and wet week. Temperature still above the average. During the whole of January the air never fell to freezing point—a very unusual fact.—G. J. SYMONS.



14	TH	Royal Society at 4.30 P.M.
15	F	
16	S	
17	SUN	SEXAGESIMA.
18	M	
19	TU	
20	W	Society of Arts at 8 P.M.

OPEN-AIR FIG CULTURE.

FIGS as grown and ripened in this country without the assistance of glass cannot by any means be termed popular. Yet they are decidedly wholesome, and if not exactly delicious as we generally understand the word, are at any rate fully appreciated by those who have acquired a taste for them. I include myself in this category, and my liking for them dates from the commencement of my gardening career. I first tasted fruit of the White Marseilles, and if more of this delicious sort were grown in the open air we should hear fewer remarks that English-grown Figs are generally "insipid" or "positively unpleasant." It must be conceded that Figs ripened in the open air of this country are much inferior in quality to house-grown fruit, neither is this to be wondered at, seeing they are natives of a far drier and hotter clime than ours. At the same time, if we cannot grow them to perfection in our variable climate, there are many districts where they may be and are most successfully cultivated, the fruits thus obtained being very acceptable and even profitable to the cultivators.

The southern counties of England appear to be most congenial to Figs, and in Kent and Sussex, especially along the coast and indeed for about twenty miles inland, they, to my knowledge, thrive admirably, while the Isle of Wight has long been noted for fine Fig trees. The neighbourhood of Bristol, again, suits them well, and this further convinces me that the sea breezes are favourable to their culture. Sea breezes alone, however, are not sufficient to insure success, and, it may be, quite as much depends upon the nature of the soil in which they are planted. In nearly every case where I had an opportunity of looking into the matter, notable examples of Fig trees were growing in soil in which either chalk or lime rubbish was freely incorporated. The finest trees I have seen were grown almost immediately below the Shakespeare Cliff, near Dover, and in very chalky soil which prevails and was brought in baskets from the top of the extensive cliffs thereabouts. The trees owned by a fisherman in charge of a stretch of land and beach at the base of the cliffs, were roughly trained up high concrete walls built to support the railway between two tunnels. These remarkable trees formed the most sturdy short-jointed and therefore fruitful growth imaginable, and the annual crops of extra fine fruits realised high prices, or 4*d.* each on an average, at Dover and the Covent Garden Market. No other kind of fruit tried succeeded in this position. Some time since I found on inquiry that unusually high seas about four years ago killed the Fig trees and completely ruined a small piece of land that had been invaluable to the man in charge for the production of crops of early Potatoes. The sea had once previously laid bare the roots, thereby greatly damaging the trees.

Another grand specimen of Brown Turkey Fig, at one time growing at the end of a gentleman's stables not far

from the Sussex coast town of Rye, was rooted principally in a very chalky border especially prepared for it. As affording an instance of the Fig's superior tenacity of life as well as its evident capability of storing sap, I may mention that the stem of this tree was at one time intended, if not actually used, for a walking-stick. The gardener, an old friend of mine, who cut it after the foliage had fallen, left it unnoticed in his kitchen during the winter, and in the spring it was found to be pushing its buds. By way of an experiment it was taken back to the garden and fixed in good soil at the base of a warm wall, where it rooted and eventually became a large and most prolific tree. In the same garden a good-sized standard Fig tree rarely failed to perfect good crops of fine fruit, and at one time, though I did not see any when there, there were numbers of standard Fig trees growing about the Isle of Wight. As a rule the Fig is not hardy enough to be grown as a standard and requires the shelter of sunny walls.

To treat them similarly to either Pear or Peach trees, as they very frequently are, will in most cases prove a great mistake, as if encouraged to grow at all luxuriantly they are neither hardy nor fruitful. They require a well-drained border and a compost consisting of equal parts of pure loam and either chalk or lime-rubbish. Into this they root at an extraordinary rate, but unlike richer soils it is very conducive to short-jointed hard growth, and that attained half the battle is won. First get your proper fruiting wood, and then feed the trees exactly as Mr. D. Thomson so successfully treats the roots of his Grape Vines, and which he very plainly described on page 58. In common with the Grape Vine the roots of the Figs require plenty of moisture, and this is best assured by their being heavily mulched with good rough manure in the summer, and in addition, if the summer prove exceptionally dry, a few good soakings of water should also be given. A liberal top-dressing of loam, manure, and chalk or lime rubbish to be forked in during the autumn or winter, and no surface crops of vegetables to be taken from the border, these tending to rob the Fig trees and to cause a tendency to deep root-action, and consequently unfertile wood.

The hottest positions on the walls of a garden should be assigned to the trees, angles formed by a junction, east and south walls, being particularly favourable. Even there, in most localities, they will require protection during the winter. The roots should be protected with a mulching of long strawy stable manure or other light material, while the whole of the stems and branches may be preserved either with mats or freshly cut and closely fixed branches of Spruce or other Firs. The less pruning a well-established tree receives the better; but it is necessary to occasionally cut hard back a few large branches at different parts of the tree, the young growths resulting furnishing the centre, which otherwise would in most cases become bare. A tree with a clear stem is best, as less liable to produce suckers, which if encouraged are usually a long time very succulent and unfruitful. There are a few who stop the young growths during the summer, but no greater mistake could generally be made, as it is near the points of these where the embryo fruits are formed during the winter. Very rarely do the small fruits near the size of Gooseberries, which remain on when the leaves have fallen, survive the winter and attain maturity, and it is to the points we must look for a more certain if later crop. Disbudding, however, should be practised where the shoots give signs of being too thick.

The variety most preferred for the open walls is the Brown Turkey, this proving hardy, prolific, and of good quality. Brunswick is more luxuriant, consequently less fruitful, but the fruits are large, handsome, and good in quality. The smaller White Marseilles is the most delicious, but out of Kent and Sussex I have not met with it, and therefore suppose it is not much grown. Brown Ischia is also well adapted for open-air culture, and I much like the

quality of its rather small roots. Here Fig trees do not long escape damage by frosts, and a good house has done away with the necessity of so much care being expended over them. In less moist localities I should have no fear of failure in the open air, and should take every pleasure in their cultivation.—W. IGGULDEN, *Marston*.

EXPERIMENTS IN POTATO CULTURE.

In your issue of July 5th, when you kindly favoured us with advice on the subject of manuring Potatoes, you were also good enough to interest yourself in our proceedings and to express a wish to hear of the result. This I should have given before now but that my notes thereon were all in the rough, and I have been too much occupied until quite lately to get them into proper order. Before going further I will avail myself of this opportunity to thank you most heartily for the kind advice you have given me from time to time, advice to which I attribute the greater part of our success.

By the time your answer to my query reached my hands I was absent in Brittany, and, time pressing, my partner had already applied the mixture which I had suggested—viz., $1\frac{1}{2}$ cwt. nitrate of soda and 1 cwt. nitrate of potash per acre. I may here mention that the whole of the ground had been trenched two spades deep, and had received a liberal application of lime, ordinary superphosphate, and compost. This season I hope to try over half of our ground the mixture you recommended—viz., $\frac{1}{2}$ cwt. nitrate of soda, $\frac{1}{2}$ cwt. potassic chloride, and $\frac{3}{4}$ cwt. superphosphate.

The Sologne, in which our work lies, is not by any means a favoured district either as regards its soil or climate. The former, as a rule, consists of large tracts of black, sour, sterile Heather soil, varied here and there with patches of stiff, cold, unworkable clay. Sometimes a spit deep of the heath soil overlies the bed of clay, and when the two are worked up together forms about the most favourable compound we have to deal with. The climate, too, is very unreliable—subject to great extremes of heat and cold, of drought, and where undrained of saturation.

Of the land we put under Potatoes about half the total extent (say three-quarters of an acre) consisted of meadow land—such as meadows are in these parts—and had been planted up with Asparagus on the Argenteuil system. This was perhaps the most suitable soil we had for the purpose. The Potatoes (Royal Ashleaf and Magnum Bonum) were planted in the ridges between the lines of Asparagus, and in the case of the latter gave a most satisfactory return.

The remaining ground, of about the same extent, consisted equally of two totally different soils, one-half being a stiff cold clay, in which we grew Myatt's Ashleaf, Schoolmaster, Snowflake, and the French variety Saucisse with moderate success; and the remainder, which was all sandy heath soil, was planted with Bresee's Prolific, International, Adirondack, Queen of the Valley, Reading Russet, Paterson's Victoria, and Scotch Champion. From some of these the best results were obtained. The chief object of putting the ground under Potatoes was to render it fit for use as forest nursery this coming season, and, unless appearances are very deceptive, we have fully succeeded in our object. On the whole, the variety rather than the nature of the soil seems to have effected the results.

It will be observed that we cultivated a single French variety—viz., the Saucisse Rouge, which has a considerable reputation in this country, owing solely, I fancy, to a want of knowledge of better varieties. It is a large, coarse, hard, yellow Potato of bad quality, subject to disease, and has not even the merit of being a heavy cropper.

The following table will show the quantities planted of each variety and the yield obtained, and its per-centage in the seed put down.

		YIELD.	
	cwt. lbs.		Per-cent.
2 cwt. Royal Ashleaf.....	20 0	.....	10.00
2 „ Magnum Bonum.....	60 0	.....	30.00
1 „ Snowflake.....	9 28	.....	9.28
1 „ Bresee's Prolific.....	10 20	.....	10.20
1 „ Myatt's Ashleaf.....	10 0	.....	10.00
1 „ Saucisse.....	10 46	.....	10.41
53 lbs. Schoolmaster.....	8 28	.....	16.50
14 „ Scotch Champion.....	2 92	.....	22.57
11 „ Paterson's Victoria.....	1 88	.....	14.28
14 „ Queen of the Valley.....	2 93	.....	23.00
14 „ Mona's Pride.....	1 16	.....	9.43
7 „ Reading Russet.....	1 42	.....	22.00
7 „ International.....	2 0	.....	32.00

The return of Magnum Bonum, Royal Ashleaf, and Myatt's

Ashleaf I have been obliged in part to give my estimate, but I believe I am well within the mark.

The most satisfactory result that I have to note in connection with our experiment is that out of the whole crop above mentioned (save Saucisse) I have only been able to find up to this date one small diseased tuber, and that occurred among the Schoolmaster. It is possible that even this was a tuber of Saucisse that had found its way in by accident. Magnum Bonum has proved a little coarse in flavour, but all the rest are as excellent in quality as could be desired.

In this district the Potato crop is a most important one, and by the introduction of new and improved varieties the return might not only, I am convinced, be at least doubled but also its value greatly enhanced. This season our hope is to give our experiment considerable extension, not only in the extent under cultivation but also by adding several new varieties to our list, and I trust we may in time see some improvement in the Potato cultivation of this district.

These notes have already by far exceeded the limits I had intended to assign to them, therefore I must not let my ardour on the subject carry me away at greater length.—E. J. C. B., *Loire et Cher*.

CACTACEOUS PLANTS.

GENERAL CULTURE.

(Continued from page 86.)

Temperature.—Where a large and mixed collection of Cacti is grown in one house, species from widely differing positions and climates have to submit to a uniform system of culture as regards temperature; but this, it appears, is not a particular disadvantage, for if a few general rules are observed these plants will thrive under any reasonable treatment. The delicate Mamillarias, the robust Cereuses, and the most tropical of the Echinocactuses can be grown together in a house to which no heat is applied during the winter except to exclude frost, but then they should be kept very dry and must be placed in warmer quarters in the spring to start them into growth. I know an extensive collection which has been so treated for some years with good results, but they are under the care of an experienced cultivator who has devoted a life to the study of their peculiarities, and anyone who is not familiar with such plants would act unwisely in testing them so severely. The safest winter minimum temperature is 50° to 55° for all the tropical species, the half-hardy, and in wet districts even the hardy sorts, being preferably wintered in a frame where they can be protected from frost. From March onwards the temperature may be raised to 70° to 80°, while with sun heat it may be increased to 90°. In the height of summer, by which time the growth of the majority of the species will be completed, the house or frame must be fully ventilated, and no shade will be required. A free exposure to the sun is as requisite to consolidate the growth of these plants as in the case of most fruit trees. In the autumn the temperature may be gradually reduced as the external heat diminishes, 60° to 65° by day, and 50° to 55° at night, suiting all the family.

Soil.—It is a general idea that for these plants a special and elaborate compost is absolutely indispensable, yet they can all be satisfactorily grown in ordinary loam and sand provided the latter be added in sufficient proportion to render the whole thoroughly porous, and there is no doubt whatever that the conventional lime rubbish is often employed in quantities that are positively injurious. In the case of delicate plants the pieces of broken bricks used may occasionally have a bad effect by attracting and retaining the moisture near the roots, and the lime in excess has a tendency to diminish the porousness of the soil. A small proportion of lime should, however, be employed for the Cereus and Opuntia type, as these secrete crystals of oxalate of lime in large quantities, and it is also advisable to add some finely broken bricks when the loam is inclined to be heavy. Indeed for all the strong-growing Cacti such material may be preferably employed, as it enables the cultivator to supply water more freely and safely than would otherwise be the case. The pots must be carefully drained, as this is a matter of much importance. From one-fourth to one-half the depth of the pot should be filled with draining materials, according to the size and condition of the plants which mostly require but little soil.

Water.—Under the cool system already mentioned very little water is needed for at least three months in the year—namely, November, December, and January, though when in pots the plants should be examined once a week. Some growers, however, especially those in the trade, turn the plants out of the pots at the commencement of winter, shake the soil from their roots, and lay them upon dry sandy soil, where they remain without the smallest supply of water until it is desired to start them in spring, when they are planted out in a frame to make their growth, being syringed and watered freely. In the ordinary Cactus house, which is kept at a rather higher temperature, water is needed more frequently even in winter, but some experience is required to determine the proper time to apply it. The soil must never be allowed to get in a stagnant saturated condition, or the strongest plants will soon die, and it is often more easy to judge by the appearance of the plant whether moisture should be supplied. If the whole tissue seems to be plump and full none is needed, but if there is the slightest approach to laxness, or a dullness in the surface colour, water should be given. In the spring and early summer, when growth is advancing, whether the plants are in a house or frame, slight syringing in the afternoon is very beneficial, particularly after potting, and it will not be necessary to apply water direct

to the soil for a week or so after that operation, as the syringe will afford sufficient moisture. When growth is proceeding rapidly the plants may be watered twice or three times a week. The stronger freely flowering species of *Cereus* and others may be assisted with a little weak liquid manure, both when growing and approaching the flowering stage.

Potting.—February and March is a suitable time for potting Cacti, and if the collection is large the earlier the operation is performed the better, provided the weather is open and mild. Some care is needed in obtaining the soil in proper condition, for it should neither be damp nor dust dry, but it is better to err on the dry side than in the other direction. When the plants are turned out of their pots most of the old soil may be shaken from the roots, and all dead dried roots must be cut off close to the stem, as much injury is often occasioned by allowing these old portions to remain attached. Large specimens in tubs or pots of considerable size seldom need repotting, a top-dressing of fresh compost, with occasional supplies of weak liquid manure, being amply sufficient.

PROPAGATION.

The majority of the Cacti are readily increased by cuttings, grafting, and by seeds, each of which methods may be briefly described.

Cuttings.—The species of *Cereus*, *Opuntia*, *Rhipsalis*, *Epiphyllums*, and others with cylindrical or slender angular stems, can be increased by means of cuttings of the young growths, which may be taken off in the spring and summer and placed in a sunny position for a few days, until the cut surface has healed, or until a few roots are seen to be forming. They can then be inserted in pots of light sandy soil, and kept quite dry until growth commences, when slight syringing will be beneficial. The temperature of the house in which the plants are grown will be sufficient. The *Mamillarias* and some of the *Echinocactuses* and *Echinopsis* produce a number of offsets from the base of the stems, which may be removed and treated like cuttings, and a large stock can be soon obtained of many species in this way.

Grafting.—The principal object of grafting in this family is to place delicate species upon stocks of a stronger character, so that there is less danger of the former suffering from superfluous moisture in the soil, as with some *Mamillarias*, or to elevate pendulous or drooping plants upon a stem, so that they can be seen to better advantage, as in the case of the *Epiphyllums*. Some of the slender *Cereuses* seem to be benefited by being grafted on stronger stocks both in their growth and floriferousness, but the latter character is usually not much affected. There is one great objection to grafted plants, and that is that usually they have an incongruous appearance almost approaching to deformity, and on this account many growers do not practise it. The operation is generally performed in early summer when growth is proceeding, and the methods employed are extremely simple. The stock, which is usually one of the *Cereuses*, such as *C. tortuosus*, *C. macrogonus*, or *C. peruvianus*, according to the habit of the plant from which the scion is to be taken, the second-named being one of the quickest growing of all, or the *Pereskia aculeata*; but this is principally reserved for the *Epiphyllums*. If one of the small globular *Mamillarias*, *Echinocactus*, *Echinocereus*, or *Echinopsis* is to be the scion the base should be cut smoothly across, and if the stock is a sufficiently broad stem this can be similarly smoothed and the scion placed level upon it, being secured in its place by matting or string passed over the plant and under the pot, so as to keep the cut surfaces in close contact. No binding is required round the junction of the stock and scion, and if the plants are placed in a rather shady position for a few days and kept dry a union will soon be effected. When the scion and stock are slender, and if nearly equal in size, they may be grafted by cutting the former at the base into a wedge shape, with a corresponding notch in the latter, tying them carefully round in this case, but not too tightly, or the surface will be injured, and probably decay. Nearly all the species in the different genera of the Cactus order unite readily with each other, but it is not well to select a plant for a stock which differs greatly in quickness of growth from the scion or *vice versa*, for the success of the union is very uncertain in such cases.

Seeds.—Though the majority can be easily raised from seeds, this method is rarely resorted to except to obtain new varieties or hybrids. The seeds are mostly small, and should be sown in a compost of three parts sand and one of loam in a temperature of 60° to 65°. The best time is immediately the seeds are ripe, otherwise the spring months are the most suitable. Germination takes place in from one to three weeks, and the progress of the seedlings is often very slow for some months, during which time the greatest care must be exercised to prevent injury by too much moisture either in the soil or the atmosphere.

Hybridising.—Nearly all Cactaceous plants produce abundance of pollen, and are readily crossed, especially the *Cereuses*, *Phyllocactuses*, and *Epiphyllums*, to which the efforts of hybridisers have been principally confined. By judicious crossing some handsome forms have been raised, and there is undoubtedly plenty of room for further experiments in this direction. For instance, the *Mamillarias* vary considerably from seed, yet very little has been done in this genus on any systematic plan. In the majority of species the pollen and stigmas are mature at the same time, and therefore if self-fertilisation is not desired the stamens of the flower selected for the seed-parent must be removed before the anthers burst; and if there are other flowers open at the same time a small piece of gauze or muslin may be tied over it both before and after the pollen is applied. The *Cereuses* hybridise readily, and it is only necessary to observe closely the time when the flowers open, as some last but a few hours, often expanding late in the evening.

CLASSIFICATION.

A great number of methods of classifying the members of this

family have been proposed, but that adopted by Hooker and Bentham in their "Genera Plantarum" is the simplest and best. Two tribes are formed. The first, termed *Echinocactæ*, is characterised by the calyx tube being produced beyond the ovary, the stem being covered with elongated tubercles or ribs, which are rarely leafy. This includes the genera *Melocactus*, *Mamillaria*, *Pelecypora*, *Leuchtenbergia*, *Echinocactus*, *Discocactus*, and *Cereus*. The second tribe, *Opuntiæ*, has the calyx tube not produced beyond the ovary, and the stems are branching or jointed. The genera *Rhipsalis*, *Nopalea*, *Opuntia*, and *Pereskia* are placed under this head. Some secondary divisions are adopted, but they are not of much popular importance. In classifying the species the spines afford valuable characters, and those who are specially interested in this part of the subject will find an elaborate system detailed in Labouret's "Monographie."

MELOCACTUS, Link and Otto.

(The Melon Cactus.)

About thirty species of plants found in the West Indies and tropical America are arranged under the genus *Melocactus*, and resemble each other closely in their leading characters. These are a globular un-

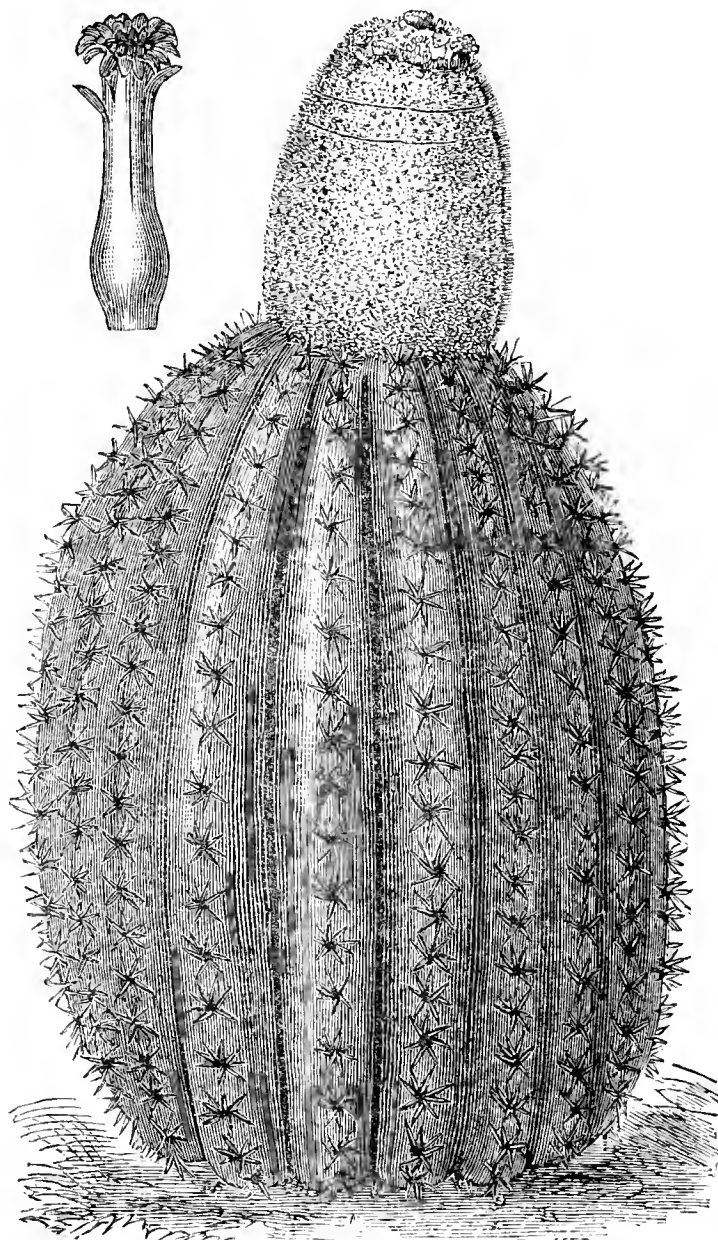


Fig. 24.—*Melocactus communis*.

branched fleshy stem 1 to 2 or 3 feet in diameter, regularly ribbed from base to summit, the ridges bearing a varying number of clusters of spines and a cylindrical portion, termed "the cap," produced from the apex of the stem, formed of a woolly substance, and closely set softer spines than those on the main stem. Upon this the small flowers are borne, tubular in form, and red or rose-coloured. All the species are natives of hot regions, generally growing in rocky or sandy situations exceedingly dry, but a few are said to be found near the coast or in salt marsh districts. Only one species—namely, *M. communis*, is in general cultivation, and this is probably owing to the fact that the plants are of little or no horticultural value, though as curiosities they are remarkable.

Culture.—The *Melocactus* is one of the most difficult of all the Cacti to grow successfully, and it is rare that a thoroughly healthy specimen is seen; indeed, imported plants that have "the cap" developed when received seldom live long, and the only specimens which have a chance of success are those sent over in a young state or raised from seed here. A high temperature, very porous soil, abundant drainage, and little water are the chief points requiring attention, and when a plant assumes an unhealthy appearance water must be withheld.

Propagation.—Offsets are seldom produced unless the crown or cap be removed or damaged, or if the upper portion of the stem be cut off. When the surface is partially healed offsets usually appear round the margins, and these can be separated and grown on like those of other Cacti.

MELOCACTUS COMMUNIS, *Link and Otto*.—"Who can but marvel at the care and singular workmanship shown in this Thistle?" wrote old Gerard in his "Herball," 250 years ago, and the question might be repeated at the present day with equal point. It is, indeed, much more peculiar than beautiful, but it is interesting historically as one of the earliest known members of the family. Most of the early English writers on plants notice it, and the author named above gives a particularly good engraving, showing the cap and spines very clearly. He terms it *Melocardus Echinatus*, the Hedgehog Thistle, and says concerning it, "This admirable Thistle groweth upon the cliffs and gravelly grounds neere unto the sea side in the islands of the West Indies, called St. Margarets and St. John's Isle, neere unto Puerto Rico, and other places in these countries, by the relation of divers travellers that have journeyed into these parts who have brought me the plant itself with his seed, the which would not grow in my garden by reason of the coldness of the climate." It was thus introduced early in the seventeenth century, but some time elapsed before it was generally known. Parkinson described it in his "Theater of Plantae," 1640, as "*Melocardus Americanus*," and gives a figure very similar to Gerard's. Ray also fully describes it in his "Historia Plantarum," 1686, and states that it was then cultivated by Bishop Compton at Fulham. In Bradley's "Works of Nature," 1739, a small figure is given, and he mentions having seen specimens in the Royal Gardens, Hampton Court, and in the Physic Garden at Amsterdam. Miller grew plants of the species and several varieties at Chelsea, and it was included in the Kew collection of 1811.

Turk's Cap, Englishman's Head, and Pope's Head are some of the popular names that have been applied to this plant, all referring to the peculiar crown on the summit of the stem, a character by which it is easily recognised. It is found in several of the West Indian Islands, particularly on the island of St. Kitts, where it grows in large quantities in barren rocky districts. It is also found on the mainland, and specimens exceeding a yard in diameter are not uncommon, some being reputed to be two or three hundred years old. In places where it abounds the mules and other cattle are said to eat the plants after removing the spiny outer portion with their hoofs, as the fleshy substance of the stem affords a welcome supply of moisture. As grown in this country, the stems are from 12 to 18 inches high and about a foot in diameter, with from twelve to twenty ridges 1 inch to 1½ inch deep, conical in shape, and bearing clusters of eight or nine spines quarter to 1 inch long, the centre one being erect, and the clusters an inch apart. The flowers are about 1 inch long, large tubular, and rosy red, somewhat suggestive of some of the small-flowered Fuchsias; these are followed by red oblong fruits resembling those of the *Mamillarias*.

The seeds are small, and in germinating produce two very minute cotyledons at the base of a globular fleshy stem. These have been overlooked by some botanists, and the plant regarded as a monocotyledon. In Decaudolle's "Vegetable Organography" a figure is given showing the true form of a young seedling with the diminutive cotyledons at the base of the plumule or gemule.

Numerous varieties have been named and described, such as *macrocephalus*, *oblongus*, *conicus*, *acicularis*, *spinosior*, *magnisulcatus*, and others, the names of which indicate the leading characters, but seedlings seem to vary so much that these names are not of much value.

The engraving (fig. 24) is a reduced representation of a plant of *M. communis*, showing one of the conical type, and one-sixth the natural size; a flower is also given of the full size.—LEWIS CASTLE.

(To be continued.)

DEATH OF MR. ALEXANDER HONEYMAN.

OUR readers will be prepared for the event that it is our melancholy duty to announce—namely, the death of our talented correspondent "Single-handed," which occurred after a painful illness on Sunday last at West Brighton, Sussex. On a future occasion we hope to publish a portrait of this estimable man, and give some particulars of his career; at present we insert the following letter, by his especial wish and in his exact words—his last words to ourselves and our readers. It is a noble yet pathetic communication that would be weakened by any comment at the present time.

A LONG FAREWELL.

"SINGLE-HANDED'S" LAST COMMUNICATION TO THE EDITORS AND READERS OF THE JOURNAL OF HORTICULTURE.

DYING!—for his medical advisers tell him his last chance has failed. It is hard. Only thirty-three. Life only beginning. My sun just rising. Doors of usefulness opening everywhere—radiant promises beaming, when the King comes!

I had hoped and worked to be second to no practical man in Britain, and the first in science. I had hoped to revolutionise gardening in the coming years, and on a scientific base to move it up. But for me the fight is ended. It is hard; but I have all along been used to hardness, and can lay down my begun work even with a smile at the vanity of human things.

But one thing no philosophy can help me in. There nothing can temper the grief that consumes me, and that is leaving penniless, helpless, a poor wife and five little ones. Oh, my pets! my bairns! Five hundred miles from friends, and all I had saved for them swallowed in my year-and-a-half's illness and idleness. I can write no more: strength fails: reason swims. Farewell for ever!

In reference to the last paragraph, Mr. Wright desires to add that by the responses of generous hearts he hopes to meet the immediate and pressing wants of the bereaved family. He has received several sums during the week, which he has acknowledged privately where addresses were given, and a valued contribution of £2 3s. is announced through Mr. Bardney from the Committee of the Liverpool Horticultural Association, which calls for public acknowledgment. "A Stranger," "W. B., Rothbury," and a "Working Gardener," are also thanked for their aid. In accordance with the wishes of many who have helped, a subscription list will not be published, but the amount raised and handed to Mrs. Honeyman will be announced in the course of a week

or two, and in the meantime Mr. Wright will take charge of any further sums that may arrive at our office.

The remains of Mr. Honeyman will be interred at 2.30 this day (Thursday) at the Hove New Cemetery, Brighton.

CULTURE OF THE BOUVARDIA.

THE *Bouvardia* is one of the most useful winter-blooming plants we have, for the same specimens may be kept continually in flower from October till April, as the plants can be brought on in two or three batches. After the plants have flowered they are placed in a lower temperature and gradually dried so as to give them a thorough rest. They should then be cut back to the ripened wood and placed in heat. If they are syringed once or twice a day they will soon commence growing vigorously, and cuttings may be taken, but not with a heel of the old wood attached; only use the young soft growths, inserting them in well-drained pots. The soil should consist of two parts of leaf soil, one of loam, with a liberal addition of silver sand, and half an inch depth of this latter on the surface. After the cuttings are inserted give a thorough watering and place them in a close propagating frame, where they will soon root if properly attended to as regards shading and moisture. After they have rooted and grown a little pinch out the points, and when they have started again place them singly in small pots, using the same soil as the above. Keep the plants in the same house until established, when they may be removed to one of an intermediate temperature and grown steadily on, pinching out the points as required to make them bushy. They should not be allowed to become root-bound before repotting, which should be this time into 48-size pots. The soil may then consist of two parts fibry loam, one of leaf soil, and one of well-decayed cow manure, with a liberal addition of sand.

At the commencement of June place the plants in a cool frame, removing the lights on warm nights to gain the benefit of the dews and warm showers. The stopping should be regulated according to the time they are required in bloom. After the plants have filled the pots with roots a few may be repotted if large specimens are required, and the rest supplied with weak liquid manure, Clay's fertiliser, or Standen's manure, shading them slightly during very bright and hot weather. It is a great mistake to allow them to remain in the frame too long. By the first or second week in September they should be transferred to a house, and at the end of the month a batch may be introduced into an intermediate temperature for early blooming. The others can be placed in heat as required, but the temperature for the later batches should not be allowed to fall below 50°. Some recommend planting *Bouvardias* out in the open air and in frames, but I think the system has little to recommend it. As regards varieties, those of the *Vreelandii* type are the most useful, but Bridal Wreath and *jasminoides* are not to be despised, or the new doubles. Some prefer *Humboldti corymbiflora*, being the largest flower, but if this is grown it must not be pinched late, or the result will be few or no flowers.—A. YOUNG.

MIXING PETROLEUM WITH WATER.

It may not be generally known that petroleum may be used as an insecticide rendered soluble in water to any degree of strength required by a very simple process, it merely being necessary to expose Gishurst compound previously cut into fine slices, and petroleum separately to the action of several degrees of frost for a few hours, and then pouring the oil on the compound and stirring vigorously; the oil will cause a vapour to arise, in fact to melt the Gishurst while in a frozen state. I herewith send you a sample of the compound and oil, united in the manner above described twelve months ago. I have kept it so long to ascertain if the oil would revert to its former state, but you will perceive that the blend is a fixed one, and that boiling water has merely to be poured on from 1 to 4 ozs. to obtain what I know from experience to be one of the most efficient and cheapest insecticides known. I find it certain death to all insects it comes in contact with, while harmless to the most tender foliage, and the oil being equally distributed and held in solution by the Gishurst, the advantages of the united and well-known excellence of both can well be imagined.

As a winter dressing for Vines, Peach, and other trees Gishurst has few rivals, and petroleum none. The difficulty with the latter has been to trust its use to a careless or indifferent person. In careful hands warm soapsuds answered very well, but still the danger remained, but now with the aid of our friend a child may be trusted to use it to any extent or for any purpose.

I have sent this method of uniting the two insecticides to the manufacturers of Gishurst compound, as I hope they will prepare it and introduce it in different strengths for different purposes, as it will

not be always convenient for gardeners or amateurs to make it themselves, unless they could employ ice or take advantage of a night's frost. Anyone with the aid of plenty of ice or chemicals could freeze enough in a few hours to last for years. Gishurst must be employed, no other will do, and it must be borne in mind that as more oil cannot be added, several strengths must be made. I shall be happy to give any further information if required. — J. WOODWARD, *Ardgillan Castle Gardens, Balbriggan.*

[The mixture referred to appears complete and satisfactory.]

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

THE eighteenth annual meeting of this excellent and admirably conducted Society was held on Monday night at the Caledonian Hotel, Adelphi, London, Mr. Richard Dean, one of the honorary members, ably presiding. The large room was crowded by an assemblage of the most respectable men in the gardening ranks, and the close attention they gave to the business of the evening, and the manner in which everything was conducted, indicated equally the intelligence of the men and their undoubted business aptitude. There are not a few gardeners who object to meetings of this kind being held in a public-house. It may be well to say, therefore, that a private room in a large London hotel is for the purposes of a meeting exactly similar to a room in a private residence or a temperance class-room, as those members present wearing the blue ribbon can readily testify. That point being made clear, we will briefly refer to the business of the meeting.

After the election of a number of members the report was read by the Secretary. This was in every respect except one the most gratifying that had been prepared on any previous occasion. It showed a far greater increase of members than during any preceding year, also greater additions to the benefit, benevolent, and management funds; but the demands for sickness had also been greater than usual. This at once shows the great usefulness of the Society, and its safe, sound, and firmly established character. During this year of what may be termed "great sickness" the sum of £9 19s. 6d. was paid in benefits, amounting to 2s. 6½d. per member; but against this, and without taking into account any contributions at all, there arose as interest from the moneys invested in consols the sum of £45. If we add to this the subscriptions of members, £163, not another word or figure is needed to show the thoroughly substantial character of the Society. The balance in hand on account of the benefit fund is £1699 7s. 7½d., or an increase during the year of £194 11s. 1¼d. The balance on account of the benevolent fund is £909 11s. 0½d., or an increase of £52 19s. 7¾d., the balance in the management fund being £5 4s. 5d. against £3 8s. 10d. last year. The total accumulated fund now invested in the Bank of England and credited as the Society's stock is £2699 12s. 6d., as certified by the Auditors of the Society, Messrs. A. J. Green and J. D. Dick.

It is in the appropriation of this ever-increasing funded property that this Society differs from all other organisations of a similar character. It is the property of the members absolutely and in exact proportion to their payments, and can be drawn by them or their nominees in accordance with the rules; and further, every member is made acquainted with the exact sum standing to his credit, and in a very simple manner. In addition to a general balance sheet, which is prepared annually, each member is supplied with a special statement of his account, showing at a glance the amount invested for him, the interest on that amount, and his contributions during the year with his share of the sick pay deducted, then the total sum standing to his credit and securely invested. An example of a private balance sheet may well be published, taking that of the first member on the Society's books.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

No. 1. Member's Name.—Mr. W. H. HEALE,
Messrs. Cheal, Lowfield Nurseries, Crawley, Sussex.

STATEMENT OF ACCOUNT FOR THE YEAR ENDING FEBRUARY 11TH, 1884.

Cr.	£ s. d.	Dr.	£ s. d.
Balance	28 5 0½	Deduct Sick Pay.....	2 2 6½
Interest	1 2 2	To Balance.....	41 3 8
Contribution	1 19 0		
	<u>£41 6 2½</u>		<u>£41 6 2½</u>
Balance.....	£41 3 8		

Treasurer.—JAMES HUDSON,
Residence.—Gunnersbury House Gardens,
Acton, W.

Secretary.—JOHN FRANCIS McELROY,
Residence.—The Gardens, Moray Lodge,
Campden Hill, Kensington.

By the above account it will be seen that the balance of Mr. Heale has increased to the amount of £3 1s. 2d. during the year, while his payments and share of the sick fund has only amounted to £2 1s. 6½d., the interest on his banked funds, plus 9s. 4½d., having secured him the above sum, and at the same time entitled him to the sick benefits of the Society if he had needed them.

This is a result, so far as we know quite unparalleled in the history of benefit societies, and therefore the Society under notice can scarcely fail to force its claims to the notice of all studious gardeners before they are too old to participate in its advantages, the limit of age

being forty-five years. Young men especially should seriously consider the propriety of joining such a Society as this in preference to a general benefit society, which cannot offer equal advantages.

After the re-election of Committeemen, and the addition of Mr. John Barry of the Royal Horticultural Society's Gardens, sundry votes of thanks brought the proceedings of the meeting to a close, the balance of the management fund being handed to Mr. McElroy as a small remuneration for his valuable services as Secretary during a period of sixteen years.



At the Annual General Meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday in the conservatory, the Right Hon. Lord Aberdare in the chair, the following candidates were unanimously elected Fellows—viz., William Edmund Boyce, Samuel William Dancocks, Robert Ewing, Edwin Faux, Mrs. Field Fisher, H. T. Shorland Fooks, William Thomas Frost, John Kendall, James Livesey, Charles Edward Lyon, Rev. J. Norman, Francis J. Pearse, Sir John Rose, Bart.; E. Shuttleworth, R. A. H. Bickford Smith, G. Hendes Smith, Rev. Wm. Wilks.

— MR. STEPHEN CASTLE, writing from West Lynn, Norfolk, on the 9th inst., observes:—"To-night I have on the table a unique BOUQUET for the season, consisting of Snowdrops, Crocuses, Primroses, and Rosemary in full flower."

— WE regret to have to record the death of DR. JOHN HUTTON BALFOUR, M.D., F.R.S. London and Edinburgh, F.L.S., LL.D. of Edinburgh, Glasgow, and St. Andrew's, and lately Emeritus Professor of Medicine and Botany in the University of Edinburgh, who expired in Edinburgh on Monday last, at the age of seventy-five. He wrote much on botanical science, and stood high in public estimation. Professor Bayley Balfour, who was only on Saturday last elected to the chair of Botany at the Oxford University, is a son of Dr. Balfour, and assisted his father for eight years at Edinburgh.

— THE twenty-sixth annual FLORAL AND HORTICULTURAL FETE AT YORK will be held on June 18th, 19th, and 20th of the present year, when the usual liberal and numerous prizes will be offered for plants, flowers, fruit, and vegetables. The schedule enumerates ninety-seven classes, the prizes varying in value from £20 to 3s.

— MR. J. HAMMOND, Boldre Grange Gardens, Lymington, Hants, observes that "On page 90 a correspondent writes respecting SPOT IN MASDEVALLIAS. This is an old enemy to gardeners, but assumes different aspects in different plants. For instance, in the Rose and Chrysanthemum leaves, besides Orchids and Echeverias. I would advise Mr. Bardney to place upon both sides of the leaf warm sulphur with the thumb and finger or a small brush, at the same time ventilating the house more freely."

— MR. GILBERT has sent us examples of his CHOU DE BURGHLEY which are identical with those we have had from him in previous years. The heads were oval-shaped, much resembling in size and form a very large and well-grown Cos Lettuce, being tolerably firm but not hard, and very pale green in colour. When cooked the "Chou" was pronounced delicious by all who partook of it. It was as tender as Vegetable Marrow, and its flavour quite distinct from that of any Cabbage. One critical individual fancied it had a "smack" of Asparagus, another a "suspicion" of Scakale, but all enjoyed it greatly. A portion was boiled for half an hour and was tender and good, but another portion allowed to boil ten minutes longer was better—in fact, perfectly cooked, and we did not consider that either coals or time were wasted in the preparation of such an acceptable dish. A firm Cabbage cannot be properly cooked in less than half an hour. We have seen Chou de Burghley growing in many gardens, and in some the plants were compact and of a uniform size, while in others they were more or less irregular. We are not able to account for the difference, but it is quite sufficient to account for the various estimates that have been formed of this vegetable. We think Chou de Burghley will live as long as its raiser, and many will join us in the hope that that will be a very long time.

— "T. S." writes:—"Have any of your readers who have had

their HOLLIES INJURED BY SALT GALES observed that *Ilex Hodginsii* suffers much less than other varieties? This was my experience of that beautiful Holly when residing near the sea."

— MR. W. BARDNEY writes:—"RHODODENDRON EARLY GEM has been rightly named, for it is indeed a gem for flowering at this season of the year, and should have a place in every garden where flowers are required during the winter months. The flowers are in the style of *R. præcox*, but slightly larger, and the plant is dwarf and very much more compact than that variety. At one time I considered the last named the best early-flowering Rhododendron, but it is superseded by Early Gem. To show the earliness of this variety it may be mentioned that it will flower freely at this season of the year in a cold house without being subject to forcing. Beautiful compact plants can be grown in 6-inch pots."

— MR. JOSEPH MALLENDER, The Gardens, Hodsock Priory, Worksop, Notts, sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS IN JANUARY:—"Total duration of sunshine in the month, 22·7 hours, or 9 per cent. of possible. We had sixteen sunless days. Total rainfall, 2·77 inches; rain fell on seventeen days; maximum fell in twenty-four hours on the 23rd, 0·71. South-westerly winds prevailed most of the month, the average velocity 15·2 miles per hour. Mean temperature of month, 43·0°; maximum on the 22nd, 51·5°; minimum on the 26th, 32·0°; maximum in sun on the 27th, 84·3°; minimum on grass on the 29th, 25·6°. Warmest day on the 10th; mean temperature, 50·4°. Coldest day on the 2nd; mean temperature, 35·6°. Mean temperature of air at 9 A.M., 41·9°; mean temperature of soil 1 foot deep, 41·1°. Number of nights below 32° in shade, 0; on grass, 12. Highest reading of barometer on the 16th, 30·632; lowest on 26th, 6 P.M., 28·293. The month has been remarkable for the mild temperature, especially at nights, for the severe gales of the last week, and for the low barometer on the 26th. From December 9th to February 2nd inclusive, or for eight consecutive weeks, the shaded thermometer never fell below 32°. The first few days were wet, then came a fortnight of dry weather, and the last ten days were very wet. The gale on the 23rd was very severe, and many trees were blown down. From 10 to 11 P.M. the velocity of the wind was 61·5 miles per hour. Vegetation is very forward."

— THE interesting letter in a daily contemporary from Miss North, the celebrated lady artist whose wonderful gallery of pictures at Kew has attracted so much admiration, thus describes a portion of the SCENERY IN THE PRASLIN ISLAND, ONE OF THE SEYCHELLES:—"The next morning Dr. Hoad took me round to the valley of the Coco de Mer (*Lodoicea seychellarum*), on the other side of the island, in his boat. We passed close along the shore, amidst beautiful salmon-coloured boulders, many of the little islands with waving Casuarina trees on their tops, and fine large-leaved trees shading the sandy shore all along, varied with patches of Cocoa-nut and Bread-fruit, and above the deep purple-red stony-topped hills, with forests between, the famous Coco de Mer trees dotted here and there among them like golden stars. It was so rough as we got to the south-east angle of the Praslin that we had a few anxious moments in our little boat, and found that the breakers and low tide would not let us go the usual way, so we had to put out to sea, and go outside some other islands, among great rolling Atlantic kind of waves, and then sailed straight into the Coco de Mer valley—my great object. Fancy a valley as large as old Hastings quite full of the great yellow stars! It was almost too good to believe. They have a thick under growth, and we had started late, so I could only draw one tree in full fruit, while Dr. Hoad had a nut cut down for me. The outside husk is shaped like a Mango or a painted egg; it is the inner nut which is double. I ate some of the jelly from inside; there must have been enough of it to fill an ordinary soup-tureen—of the purest white, and not bad. The male tree grows a good third higher than the fruit-bearing tree; there are masses of imperfect fruits, like gigantic acorns, which never come to perfection. The trees grow fast to a certain point, but like the tortoises, very slowly after that."

— A CORRESPONDENT sends the following note:—"The annual meeting of the EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY took place in the Girls' School-room at Ealing on the 8th inst., and from the report of the Committee presented on that occasion it appears that there are nearly 400 subscribers to the Society, besides many local tradesmen who give special prizes in kind in the cottagers' classes; these include articles of dress for men and women, gardening

tools, pictures, clocks, cakes, and other articles of food, all of good value and very acceptable. The income of the Society in 1883 was over £460, a large sum of money for a suburban society to raise, and this was made up of annual subscriptions, special prizes, entrance fees, &c. £326 15s. 6d.; admissions to summer show, £113 17s. 4d.; to autumn show, £12 5s. 5d. It will, therefore, be seen that the Society is able to hold two exhibitions in a year, one during the second week in July, which is on an extensive scale. Something like 1250 entries were made on the occasion of the summer show in July last. The autumn show, which takes place in November, is made up of Chrysanthemums, fruits, and vegetables, and is very attractive. The Society is fortunate in being enabled each year to hold its summer show in the pleasant grounds of one of the residences in the immediate neighbourhood, and the show fixed for July the 9th next will take place in the grounds of Manor House, Ealing, the residence of the Misses Perceval, daughters of the Right Hon. Spencer Perceval. Much of the Society's success is due to the exertions of Mr. Richard Dean, the Hon. Secretary, who is entering on the ninth year of his service, assisted by a good working committee of amateurs and professional gardeners.

— MR. P. CONNELLAN, Colmore, Thomastown, sends the following particulars of fine Conifers at Woodstock, Innistioige, Ireland:—*Araucaria imbricata*—height, 52 feet; diameter of branches, 29 feet; girth of stem (3 feet up), 7 feet 1 inch. *Cryptomeria Lobbii*—height, 44 feet; diameter of branches, 18 feet; girth of stem, 4 feet 2 inches. *Cupressus macrocarpa*—height, 58 feet; diameter of branches, 48 feet; girth of stem, 8 feet 6 inches. *Picea cephalonica*—height, 58 feet; diameter of branches, 44 feet; girth of stem, 8 feet. *Pinus insignis*—height, 66 feet; diameter of branches, 43 feet; girth of stem, 8 feet 10 inches. *Pinus strobus* (Weymouth Pine)—height, 65 feet; stem, clear of branches, 57 feet; girth, 7 feet 7 inches. The largest common Silver Fir—height, 107 feet; diameter of branches, 59 feet; girth of stem at 4 feet from the ground, 14 feet 9 inches.—(*Irish Farmers' Gazette*.)

— THE MUSEUMS OF ECONOMIC BOTANY AT KEW have during the past year been thoroughly re-arranged, owing in part to the additional apartment provided at the building facing the Palm house, the construction of gallery in the Wood Museum, and the incorporation of the India collections from Kensington with those previously at Kew. Many objects of great interest have been added, and much further information with photographs of scenery have greatly increased the value of these wonderful collections. The first part of a new edition of the Official Guide has been just issued, and is devoted to the Dicotyledons and Gymnosperms, being sold at the moderate price of 3d. In this publication the following historical information is given respecting

— THE ORIGIN OF THE MUSEUMS:—The foundation and progress of these collections, not only by far the most extensive in existence, but the first of their kind established, may be briefly traced since the conception of their plan by the late Director of the Royal Gardens, Sir W. J. Hooker. In 1847 the building now occupied by Museum No. II., which up to that year had been in use as a fruit store-house, &c., was added, by command of Her Majesty, to the botanic garden proper. Permission was immediately sought by the Director to have one room of this building fitted up with suitable cases for the exhibition of vegetable products—objects which neither the living plants of the garden nor the preserved specimens of the herbarium could show. Sir W. J. Hooker's request was liberally met by the Chief Commissioner of Her Majesty's Woods and Forests, and the museum was forthwith commenced, its nucleus consisting of the Director's private collection, presented by himself. No sooner was the establishment and aim of the museum generally made known than contributions to it poured in from all quarters of the globe, until in a few years the ten rooms of the building, with its passages and corners, were absolutely crammed with specimens. Its appreciation by the public being thus demonstrated, application was made to Parliament for a grant to defray the expenses of an additional building for the proper accommodation of the objects, and the house occupied by Museum No. I., opened to the public in the spring of 1857, is the result. In 1881 the extension of Museum No. I on the west side, containing a new and commodious staircase, was erected at a cost of £2000, met by a grant from the India Office, in order to supply the additional accommodation required for the Indian collections mentioned below. From the Exhibitions of 1851 and 1862, and from the Paris Exhibitions of 1855 and 1867, large additions were made to the museums, both by the presentation of specimens and also by their purchase, aided by grants from the Treasury and Board of Trade. Many eminent firms

engaged in the importation and manufacture of vegetable substances have most liberally contributed various illustrative series. By the different Government departments, by our Colonial officers and foreign representatives, and by numerous private travellers also, the most important services have been and continue to be rendered. Besides these sources of contribution must be mentioned the reinforcement of the Indian element in the museum, first in 1878 by the collection of forest produce, presented by the Government of India (consisting of 1113 specimens), and secondly in 1880 by the transference to Kew of the entire economico-botanical collections, forming part of the India Museum at South Kensington. From these about 4000 specimens were selected for permanent exhibition; these are distinguished by a light blue label bearing the words "India Museum."

— A FRUIT-PRESERVER writing to the *Liverpool Courier* upon FRUIT FARMING observes that "Mr. Gladstone has recently stated that the number of acres of fruit grown in this country has only increased by 27,000 acres in the last nineteen years, and that 24,000 out of the 27,000 acres has been in five counties only. I have no doubt that this is quite true, and the counties referred to are those immediately around London. Other counties at a further distance from London go in for only partial cultivation of fruit, say Cornwall, Devon, Gloucester, Worcester, Hereford, Shropshire, Cheshire, and Norfolk: but a large proportion of other English counties do not grow fruit to any extent as compared to the acreage under cultivation of other products, and I am compelled to draw very large supplies from the counties immediately round London, of which Covent Garden and other London markets are the centre. I have for many years been of opinion that if the British farmers would put an increased portion of their soil under the cultivation of Gooseberries, Raspberries, Strawberries, Black Currants, Plums, and Damsons, it would pay much better than their present mode of working. The manufacture of fruit preserves is beginning to take a new position in this country, and is now being largely used. It is, however, incorrect that jam is charged from 7d. to 9d. a lb., and also that it is owing mainly to the energy of the French, Belgian, Dutch, German, and American fruit-growers. No doubt the first four countries do give a supply of some kinds of fruit for the manufacture of jam, principally Plums, but I am not aware that America sends us any fruit whatever for jam-making. By far the largest proportion of fruit used for the manufacture of jam is grown in this country. My usual season's make is Gooseberry, 300 tons; Raspberry, 300 tons; Strawberry, 200 tons; Black Currant, 400 tons; Damson, 500 tons; Blackberry, 100 tons; and they can be bought retail from any ready-money grocer at the following prices:—Gooseberry, 5d. to 5½d. per lb.; Raspberry, 6d. to 6½d.; Strawberry, 6d. to 6½d.; Black Currant, 5½d.; Blackberry, 5½d.; Plum, 4d. Mr. Gladstone is therefore in error in stating that the jam consumed in this country is not English-made jam. I have never seen a single package of French, Belgian, Dutch, German, or American jam offered in this country."

ROYAL HORTICULTURAL SOCIETY.

THE Annual General Meeting of this Society was held in the conservatory at South Kensington on Tuesday the 12th inst., the President, Lord Aberdare, in the chair, and the following members of the Council were present:—Sir Trevor Lawrence, Bart., M.P., Dr. R. Hogg, G. F. Wilson, Esq., E. G. Loder, Esq., W. Lee, Esq., W. Haughton, Esq. (Treasurer), and Major F. Mason (Secretary). There was a fair attendance of Fellows.

The proceedings were commenced by the Secretary reading the announcement calling the meeting, the minutes of the last general meeting, and the names of gentlemen proposed and duly elected as Fellows of the Society. Dr. Masters and Mr. Noble were then appointed scrutineers of the ballot for the election of officers and members of the Council for the year—namely, members of the Council:—The Right Hon. Viscount Enfield, Professor Michael Foster, F.R.S., and Frederick Du Cane Godman, F.R.S. Officers:—President, Lord Aberdare; Treasurer, William Haughton; Secretary, Major F. Mason; and Auditors, John Lee, James F. West, and W. Richards. It was subsequently announced that these had been all duly elected. An alteration in one of the bye-laws to facilitate the work of the Treasurer in regard to signing the receipts for Fellows' subscriptions distributed to the Fellows was proposed and adopted, and the annual report which follows was then taken as read.

ANNUAL REPORT FOR 1883

The Council congratulate the Fellows on the financial position of the Society, the revenue of the year having been sufficient to satisfy the debtor balance carried forward from the preceding one, and to give a considerable surplus after paying or providing for the payment of every liability to the 31st December last.

The Council regret that some of their Fellows should have felt aggrieved by the partial curtailment of their enjoyment of the gardens, which was necessitated by the holding of the Fisheries Exhibition; but apart from the fact that this curtailment was unavoidable, the Council have the gratification of believing that the great majority of Fellows found ample compensation

for any loss they suffered in this respect in the large privileges which they enjoyed in connection with that Exhibition.

The Council have the pleasure of being able to announce that they have succeeded in arranging with the Executive Council of the International Health Exhibition that Fellows shall have in respect of this Exhibition the same privileges, except as to the opening ceremony and six evenings which may be reserved, as they enjoyed during the Fisheries Exhibition.

The Council take this opportunity of recognising the spirit of friendly consideration for the interests of the Society which has been shown by the executive of each of these exhibitions, and the liberality of the Council of the International Health Exhibition, which enables them to present to each former debenture holder of the Society a ticket, giving all a Fellow's privileges of admission, but not transferable, in addition to the privileges granted to him last year.

In the early summer an experiment was made in the form of two evening meetings, which the Linnean Society very kindly allowed to be held in their rooms at Burlington House.

On both occasions a large number of valuable plants were arranged in the library, including Orchids sent by Sir Trevor Lawrence, Mr. Lee, Messrs. Veitch, and others; Rhododendrons by Mr. Mangles; herbaceous and other plants by Miss Jekyll, Mr. Loder, Mr. G. Maw, Mr. T. Ware, Messrs. Barr, and others, as well as specimens from the Royal Gardens, Kew, and the Society's gardens at Chiswick. The company assembled in the library some time before the reading of papers commenced showed very great interest in the examination of this collection of flowers. On both occasions the chair was taken by the President, Lord Aberdare, strongly supported by members of Council.

At the first meeting on May 8th, after some appropriate introductory remarks by the Chairman, Dr. M. Foster, F.R.S., gave an account of the onocycus groups of Irises, dwelling on the characters of their construction, their botanical affinities, their geographical distribution, and the proper method of culture. His remarks were illustrated by means of large diagrams, and with freshly cut blooms of *Iris iberica*, one of the best known of the group. A discussion followed, in which Sir J. Hooker, Mr. H. J. Elwes, and Mr. J. G. Baker took part. Mr. E. G. Loder then read a paper on hardy Cacti, giving an account of their affinities and distribution, and describing the method of culture, which in his hands has proved so successful. Dr. Hogg followed with an account of some Australian Apples, recently imported, exhibiting specimens and distributing them freely among the audience. The meeting was brought to a close by Dr. Foster briefly describing and exhibiting on behalf of Herr Max Leichtlin several new plants recently flowered at Baden Baden.

At the following meeting, June 12th, the reading of papers began by "Notes on Conifers," by Dr. Masters, F.R.S., in which the author drew attention to the mode of growth and to other physiological features of certain Pines and Firs. Mr. W. Goldring followed with a paper on "Cypripediums," admirably illustrated by a very large number of choice Cypripediums in blooms, kindly sent by various gentlemen. The author passed in review some of the leading types of the genus, as well as the striking hybrids recently produced, and an animated discussion followed. Mr. G. Maw then gave an account of the genus *Crocus* (concerning which he, as is well known, is the highest authority), dwelling particularly on the light which a knowledge of the geographical distribution and habits of the various species and varieties may be made to throw upon the culture most likely to be successful.

The experiment of these meetings may certainly be considered most encouraging. The audience was not only large, well filling the Linnean Society's meeting-room, but included besides the gentlemen incidentally mentioned above, many distinguished horticulturists, and several Fellows of the Linnean Society. Great interest was shown both in the papers read and in the discussions which followed, while the opportunity afforded for examining and conversing about so many beautiful or rare plants helped to make the evenings very enjoyable, and repeated expressions were heard of the desire that more of such meetings might be held.

The gardens at Chiswick have been maintained in a high state of efficiency, the practical work of the Society being carried on as usual. Fellows and their friends visited these gardens in larger numbers than during past years.

The trials by the Fruit and Floral Committees comprised respectively Peas (of which 154 samples were tried), Potatoes in great variety, Lettuces, Tomatoes grown in pots and in the open ground, and Celeries among vegetables; and among flowers and plants, Pelargoniums, Verbenas, Sweet Peas, Begonias, single Dahlias, Tydeas, Gloxinias, and others.

It is proposed that trials shall be made during the present year by the Fruit Committee of new varieties of Potatoes and Peas, and of the entire class of Cauliflower and Broccoli, which is in great confusion; and by the Floral Committee of new Pelargoniums, Begonias of the Rex or handsome-foliaged type, Ferns of the Adiantum or Maidenhair class, and Chrysanthemums. Fellows of the Society and other cultivators of any of these plants, &c., are invited to contribute for this purpose.

Facilities were afforded to the Committees of the Pelargonium Society and the International Potato Society for the trials of new varieties of the objects submitted to these bodies respectively for cultivation.

The success attending the novel experiment of the Apple Congress at Chiswick surpassed the most sanguine anticipations of the Council, such a display of different varieties, of which the Society's garden contributed 260, having never before been seen. About 10,000 persons visited the Exhibition, which enabled the Fruit Committee to obtain much valuable information in connection with the fruit exhibited. A report embodying this information is being prepared for publication.

It is contemplated, should the season prove favourable, to hold similar shows of other fruits.

The number of plants required for distribution to Fellows continues to increase. During the past year 19,470 plants in pots have been sent out with 30,000 packets of seeds, and about 5000 cuttings of Vines and other fruit trees, the number of Fellows availing themselves of this privilege being 997.

The cost of repairs during the past season shows some increase, the great vinery having had to be repainted and several plant pits renewed.

There were among the Fellows during the year 135 new elections, 147 resignations, and fifty-seven deaths, twenty-three of these deaths having been those of life Fellows.

In commenting on the above report and the condition of the Society, the President, Lord Aberdare, remarked that their position that day indicated that the Society is in a state of transition, but there were several facts which gave cheerful hopes for the future, as, though there had been a falling-off in the number of elections during the year, there had also been a reduction of expenses. No doubt that some members had been lost owing to the partial severance of the Society from the Kensington Gardens, which had been very attractive to residents in the neighbourhood. But this loss had not been so great as he expected, and he believed that no Fellows had resigned who had joined them simply from a love of horticulture and a desire to further its interests. Therefore, the scientific and practical importance had not been decreased in the slightest degree. The previous year the elections were 147 and the resignations 124; in the past year the elections were 135 and the resignations 147. Returning to the financial aspect his lordship stated that during the five preceding years there had been an adverse balance on each occasion, but this year, after clearing off all debts and doubtful assets, there is a balance of £800 to the good. This was chiefly due to the liberal arrangements the Committee of the Fisheries Exhibition had made with the Society, and partly to the reduction of expenses; but though this thus derived from what might be termed accidental causes it had placed them in an extremely good position with regard to the present year, in which he considered they would be able to increase the strength of their finances.

Arrangements have been made with the Executive Council of the Health Exhibition securing to the Fellows similar privileges to those enjoyed by them in connection with the Fisheries' Exhibition—i.e., free admission while the Exhibition is continued, except to the opening and closing ceremonies, and upon six evenings to be reserved by the Council, the debenture holders also being entitled to obtain passes. It is also proposed to continue the monthly evening meetings, which proved so successful last year, and which the Chairman thought would add much to the scientific importance of the Society. No large shows are to be held, but it is in contemplation, though the arrangements have not yet been completed, to hold monthly exhibitions of flowers and fruit in a building to be erected for the purpose at the expense of the Health Committee, but under the care of the Royal Horticultural Society. If this can be settled upon, it will be greatly to the advantage of the Fellows, and no doubt some extensive displays would be obtained, as one of the usual fortnightly meetings would be held upon the same day. He concluded by submitting that the report be adopted.

Mr. Shirley Hibberd, in seconding the adoption of the report, stated that it was gratifying to hear of the Society's satisfactory financial position; but it should be remembered that this was due to money acquired by accident and did not indicate increased moral strength. Any comfort derivable from the report seemed to be chiefly speculation as to the future, and he regretted that the announcements respecting the programme of the present year had been made so late that the Special Societies which had added so much to the attractions of the Society had been compelled to fix the dates of their shows in much uncertainty as to where they would be held. He considered the fortnightly meetings are in danger of becoming merely trade exhibitions, and he thought it was desirable that the Society should expend more money in connection with the meetings with a view to encouraging amateurs. It was said that gentlemen sending their plants and fruits to the Society's meetings must not expect money prizes, but the gardeners looked for some compensation, and he was convinced that a moderate sum judiciously expended would do much to increase the number of amateur exhibitors, and thus render them better representatives of general horticulture. Referring to Chiswick Mr. Hibberd thanked the Society on behalf of the Committee of the International Potato Show for the liberality by which a space of ground had been placed at their disposal for testing varieties of Potatoes both in the last and present years. He also wished that Fellows would visit the Chiswick Gardens more frequently than is the case, as there is always much to interest them, though there is room for several improvements in regard to the labelling and other matters.

In reply Lord Aberdare called Mr. Hibberd's attention to the fact that though the increased receipts was accidental, the decrease in expenditure was permanent. It was further stated that only medals had been given at the meetings, and it was the general opinion that the displays had greatly improved. It does not therefore appear that money prizes are needed. The Chiswick Gardens had been under consideration, and it was proposed to expend a portion of their surplus upon improvements there, as the Society depends greatly upon this garden.

Some discussion arose respecting the approaches to the conservatory, but it was explained that when the Health Exhibition is opened Fellows can obtain admission at any door; until then the north-east door is reserved for them, and they will have access to the conservatory only. The report was then adopted, and the meeting terminated with a unanimous vote of thanks to the Chairman.

[In consequence of an accident occurring in preparing for press we are unable to publish the auditors' report and balance sheet.]

LATE-FLOWERING CHRYSANTHEMUMS.

ALMOST any flowers are useful in the dull months of winter. I have found amongst Chrysanthemums Julie Lagravère a very serviceable variety, having had fresh flowers of this until the 24th of January from plants which we have been cutting for six weeks. Countess of Dudley has proved useful, having flowers which look likely to keep till the middle of February. This is a variety that has not come under my notice before. I should feel obliged if any of your readers would say what they know of it; I cannot find it in any of the lists of Chrysanthemums that have reached me. The plants I refer to were stopped about the middle of August. Other varieties were pinched at the same time with poor results—White Christine, Beverley, Diamond, and a few Japanese, which produced small mis-shaped flowers, while many of the buds did not open at all. With Julie Lagravère Snowdrop would be a

good companion, its pearly white flowers being naturally late, and it is a good keeping Pompon.—J. P.

WITH us the Chrysanthemum season is not over yet, as you will see by the blooms which I send you. Fair Maid of Guernsey is from a plant that was cut back to about a foot from the pot in July, showing that by that system useful blooms may be had during January and February. And how serviceable they are during these months! Guernsey Nugget is just now at its best with me, and Princess Teck fresh and fine, the blooms on disbudded and undisbudded plants being very good. Père Delaux appears to be a good late Japanese variety. I attribute their lateness partly to the very mild autumn and winter.—WM. JENKINS.

[The flowers sent are very fresh and attractive, and there is not a speck of mildew on the foliage. The plants have evidently received good attention. Another correspondent states that by cutting down some plants he has a valuable supply of late flowers. For producing dwarf plants for exhibition only the earliest varieties may be cut down in June. Cutting down all sorts indiscriminately in July is a mistake when blooms are wanted in November. Such a mistake is, however, not likely to be made by many thoughtful cultivators.]

SPECIAL SOCIETIES.

I HAVE no wish to enter into controversy with Mr. Douglas, and, like your correspondent "Border Flower," object to giving the name of the amateur to whom I alluded; but, like him, I have sent it to the Editor, that he may use his discretion as to giving it to Mr. Douglas or not. As to your correspondent "W. J. H.'s" question about pedigree Roses, I object to the term because it is misleading. Pedigree has reference, so Richardson says, to "the genealogy of forefathers;" and when we speak of pedigree Shorthorns (*e.g.*) it is that we can trace for some generations the stock from whence they came. But because you cross two Roses you are entitled to call the progeny a pedigree Rose seems to me ridiculous. Why not speak of pedigree Geraniums or Auriculas, or any other flower of which you know the parents?—D., Deal.

I AM very loth to further trouble you regarding this matter, but Mr. Douglas in your last issue rather assumes that "D., Deal," was referring to an amateur who had an overstock of good Auriculas to dispose of. What "D., Deal," really said was:—"In the class for pairs there were fourteen instead of nine exhibitors, showing unmistakably the wisdom of making this class so as to admit small growers, although I cannot but think an unfair use was made by some exhibitors of this class." Further on your worthy correspondent "D., Deal," refers to the individual complained of as "he."

Let us see who competed in the class in question and obtained prizes. Your issue of 26th April, 1883, page 340, shows that the following took the prizes in the order named—Messrs. S. Barlow, P. K. Penson, W. Brockbank, C. Turner, M. Rowan, and W. Bolton. I observe later on that Mr. C. Turner took every prize in the two classes for a single specimen gold-centre Alpine Auricula and a single specimen white or cream centre Alpine Auricula. Comment is needless, the more so as Mr. Douglas seems to think this is as it should be; but he does admit that a man who had a surplus stock of a thousand plants ought not to have competed in the class for two Auriculas, adding in a guarded manner, "I do not think it was done."

A perusal of the list of winners in the particular class under notice will convince Mr. Douglas that such was really the case, or I am sure "D., Deal," would not have called attention to the matter in the terms he did.—AURICULA, North London.

I THINK your correspondent "Border Flower" has hit the right nail on the head. I am told, it may be wrongly, that Mr. Douglas sells more Auriculas than any nurseryman in the kingdom (Mr. Turner excepted); while Mr. Cannell advertised last year that he had bought all his surplus stock of Carnations and Picotees; while Mr. Dodwell must be considered quite a nurseryman. He publishes a catalogue of his own seedlings, priced at 10s. and 5s. a pair, and Mr. Cannell advertises this year that he has bought his surplus stock. It would be surprising, therefore, if the two Secretaries did not see cogent reasons why the two Societies should flourish!—FAIR PLAY.

VINES BLEEDING.

I HAVE much pleasure in informing "Comber" (page 60) that the Vine which bled so profusely here after having one of its limbs cut off last April is alive and well. He will remember I did not say bleeding was injurious, beneficial, or harmless; but I pointed out that some were of one opinion and some another on this subject, and the case in question ought to point to a conclusion of some kind. Whether it has done so or not your readers may judge.

From the time the Vine was pruned until the shoots had gained a length of a few inches between two and three gallons of sap were lost. It was a Foster's Seedling with three main rods, and one of them was cut away to make room for an Alicante. In the same house were some rods of Black Hamburgs. These grew fast enough, and the Foster's Seedling kept pace with them in every respect. There was no shyness in forming shoots, with two and three bunches on each, as is usual with this variety. Wood and leaves developed as strongly as ever they did previously, and the bunches matured in the ordinary

way. Indeed the whole appearance of the Vine from then until now indicates unimpaired energies, and last midsummer no one could have told it had ever lost a drop of "blood." I had a drink of this latter, and it gave me the impression of being water, pure and refreshing. Some of it which was put into quart bottles, corked up, and kept for a time, never changed in character.

"Non-Believer" (page 80) speaks very boldly all at once; but why did not he take the matter up when I asked your readers to predict what would be the result of our Vine losing so much sap? We should have known by this time how much his teachings were worth on the subject. He sees from "Comber's" note that I do not believe Vines are injured by bleeding, and armed with this knowledge of my opinions, he puts forth what he terms a challenge on the matter; but this only corresponds with the hackneyed phrase indulged in further on—"If they decline the challenge, I and others of your readers will no doubt form our own opinions," and "I never saw . . . and never knew anybody either who did," are expressions used by some writers in every gardening paper where they could get them in for the last twenty years, but now they only provoke a smile. Are they inserted for the amusement of readers?—J. MUIR, *Margam Park*.

THE Vines here were planted in the spring of 1881 in borders inside—viz., old Pine pits, as stated exactly by Mr. Challis on page 36, only these pits are divided by a 4½-inch brick wall, so that at any time one part could be renewed without disturbing the other. The Vines in one part of the pit received 680 gallons of water previous to starting them this year, the other half had 170 gallons, both in the same house. The first commenced bleeding (and are bleeding still) the same day as watered; the others show no signs of bleeding. This I have tested two years, and must, I should say, prove that the watering helps the bleeding; but if this lost sap, or water, has no nourishment for the coming foliage, and that is only supported by stored-up sap till the Vines commence making fresh roots, we may rest content that it is doing no harm, but I have always seen it in another light. The Vines in question have exceeded our expectation, and have been cropped from the first. I have seen no great difference in the crop as yet, bleeding or no bleeding; but this year I may be able to form a better opinion, as I am watching this closely and other treatment from the time of planting.—BLACK PRINCE.

ELECTION OF CARNATIONS AND PICOTEEES.

THE ELECTORS' RETURNS.

[The names of the raisers of the varieties in the following lists have been given in the previous returns.]

From Mr. THOS. MADDOCK, gardeuer to J. Ramskill, Esq., Lofthouse Hall, Wakefield.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
Jno. Hines
Mars
George
Edward Adams
Mercury

Crimson Bizarres.

J. D. Hextall
Harrison Weir
Eccentric Jack
Jenny Lind
Master Fred
William Murray

Pink and Purple Bizarres.

Sarah Payne
Squire Llewelyn
Falconbridge
Stanley Hudson
Unexpected
James Taylor

Purple Flakes.

Squire Meynell
Mayor of Nottingham
Squire Trow
James Douglas
Dr. Foster
Juno

Scarlet Flakes.

Sportsman
Clipper
Annihilator
Dan Godfrey
Thomas Tomes
Bayley's Junior

Rose Flakes.

Sybil
James Merryweather
Mrs. Dodwell
John Keet
George Henry
Electric Light.

PICOTEEES.

Heavy Purple-edged.

Zerlina
Mrs. A. Chancellor
Tinnie
Mrs. Nivens
Mrs. Lord
Isabel

Light Purple-edged.

Her Majesty
Ann Lord
Master Nichols
Minnie
Clara Penson
Alice

Heavy Red-edged.

John Smith
Brunette
Emily
J. B. Bryant
Master Norman
Miss Small

Light Red-edged.

Thomas William
Elsie Grace
Violet Douglas
Mrs. Gorton
Sarah Elizabeth
Mrs. Bowers

Heavy Rose or Scarlet-edged.

Mrs. Rudd
Lady Holmesdale
Edith Dombrain
Miss Horner
Miss Lee
Louise

Light Rose or Scarlet-edged.

Miss Wood
Mrs. Adams
Mrs. Allcroft
Nellie
Thomas Fleming
Morning Star

From Mr. GEORGE RUDD, Undercliffe, Bradford.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
Arthur Medhurst
Edward Adams
George
Fred
Mercury

Crimson Bizarres.

Master Fred
J. D. Hextall
John Simonite
Eccentric Jack
Rifeman
Harrison Weir

CARNATIONS.—Continued.

Pink and Purple Bizarres.

Falconbridge
Sarah Payne
James Taylor
William Murray
William Skirving
Squire Llewelyn

Scarlet Flakes.

Sportsman
Clipper
Annihilator
Dan Godfrey
John Ball
Thomas Tomes

Heavy Red-edged.

John Smith
J. B. Bryant
Lord Valentia
Master Norman
Dr. Abercrombie
Morna

Heavy Purple-edged.

Zerlina
Alliance
Mrs. A. Chancellor
Tinnie
Lizzie Tomes
Isabella

Light Red-edged.

Thomas William
Elsie Grace
Sarah Elizabeth
Violet Douglas
Mrs. Bower
Clara

Purple Flakes.

Dr. Foster
James Douglas
Squire Meynell
Florence Nightingale
Mayor of Nottingham
Sporting Lass

Rose Flakes.

John Keet
James Merryweather
Mrs. Dodwell
Sybil
Lovely Ann
Electric Light

PICOTEEES.

Light Purple-edged.

Ann Lord
Minnie
Mary
Clara Penson
Master Nichols
Her Majesty

Heavy Rose or Scarlet-edged.

Mrs. Payne
Miss Horner
Mrs. Rudd
Fanny Helen
Lady Holmesdale
Lady Louisa

Light Rose or Scarlet-edged.

Mrs. Allcroft
Miss Wood
Miss Gorton
Fairy Queen
Nellie
Mrs. Adams

From Mr. S. HARTLEY, Leeds.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
Arthur Medhurst
Fred
George
John Hines
Mars
Sir J. Paxton

Pink and Purple Bizarres.

Falconbridge
James Taylor
Purity
Rev. F. Tymons
Sarah Payne
Stauley Hudson

Scarlet Flakes.

Clipper
Dan Godfrey
John Ball
Mr. Battersby
Sportsman

Thomas Tomes
William Mellor

Crimson Bizarres.

Eccentric Jack
Graceless Tom
John Harland
John Simonite
Lord Milton
The Lamplighter

Purple Flakes.

Blue Bell
Dr. Foster
James Douglas
Lord Derby
Mayor of Nottingham
Squire Meynell

Rose Flakes.

James Merryweather
Lovely Ann
Mrs. Matthews
Mrs. Tomes
Sybil

PICOTEEES.

Heavy Red-edged.

J. B. Bryant
John Smith
Master Norman
Mrs. Fuller
Princess of Wales
Lord Valentia

Heavy Purple-edged.

Alliance
Lizzie Tomes
Tinnie
Zerlina
Mrs. A. Chancellor

Heavy Rose and Scarlet-edged.

Charles Williams
Edith Dombrain
Fanny Helen
Juliana
Lady Homesdale

Light Rose-edged.

Mrs. Bower
Mrs. Hornby
Rev. F. D. Horner
Thomas William
Thomas Jivens
Violet Douglas

Light Purple-edged.

Ann Lord
Her Majesty
Clara Penson
Master Nichols
Minnie

Light Rose and Scarlet-edged.

Miss Wood
Fairy Queen
Mrs. Allcroft
Morning Star
Bertha

FERNS AND THEIR CULTIVATION.

(Continued from page 103.)

I BELIEVE good leaf soil will suit any Fern as well as peat, and in the case of Adiantums will not be so injurious. Take for instance that queen of the genus *A. farleyense*. I remember when *A. farleyense* was new, and small plants were selling at from 20s. to 30s. each, we had several in splendid condition growing in strong loam, leaf soil, and sand. A gentleman who had seen our plants went to a nursery a few miles from Manchester and saw some very miserable-looking plants in declining health, and remarked to the proprietor about their want of vigour. "Oh," said he, "*farleyense* is no use,

it cannot be grown; we are giving it up as impossible." One of our specimen plants we exhibited at Old Trafford about that time or soon after, and it was admired by all who saw it. Some years after this, when our supply of leaf soil was exhausted, we resorted to the use of peat, and almost lost our stock of *A. farleyense*, although we had some hundreds. I felt sure the peat did not agree with them; had them turned out of the pots, their roots washed, and potted again into good loam, and, I think, cinders or sand, and in a few days the change was marvellous. They commenced growing, and soon became strong healthy plants. That lesson has made me fight very shy of peat for *Adiantums* ever since, and we use very little indeed in our compost for Ferns. I am satisfied that good rich loam with a sufficient

and their rhizomes or creeping stems in the damp moss, they grow luxuriantly and make objects of great beauty. This also appears to be the best method of growing the *Platynerium*, since it allows the water to drain freely away, while the moss holds enough moisture to support them for days. Another important advantage of growing *Davallias* and *Platyneriums* in this way is that it gives the room which they would otherwise occupy on stages and shelves for the convenience of other plants.

[An engraving (fig. 26) is given of *Davallia hemiptera*, a very distinct species of good habit.]

In all these cases I have laid emphasis upon the importance of good drainage, for though Ferns love plenty of water at the roots they do not like it to remain there stagnant, excepting in such kinds as the *Osmundas* already mentioned. But let me here say a word about the injury often done to Ferns by watering or syringing them. When grown under glass the greatest care ought to be taken not to wet the foliage, and especially in dark weather; for the result of water lodging on the fronds is often seen in ugly dark stains which never come out, but remain an eyesore till the fronds so stained are removed from the plants. Moisture generated by sprinkling the paths and walls is the most congenial to the plants, and may be produced without the risk of disfiguring the foliage. Then, again, the water applied to the roots should be of the same temperature as the atmosphere of the house in which they grow, so that no check is given to the plants. I am impressed with the idea that when rain falls on rocks which have been long exposed to hot sun it must attain a high degree of heat before reaching the roots of the plants below, so that we need not fear that warm water will do harm to tropical plants growing in a high temperature; but we have every reason to fear injury from the application of water which is too cold.

As to the potting of Ferns, I need only remark upon the necessity for open compost, and that not too firmly pressed in the pots, and especially do not overpot. Small shifts as frequently as the soil become filled with roots will be followed by the best results, while overpotting is often the cause of failure, sickness, and death overtaking the plants so treated.

With respect to insects, some Ferns appear to escape their depredations altogether, while others are with the greatest difficulty kept clear of them. Of mealy bug I have had such little experience that I do not feel qualified to speak about its attacks upon Ferns. We have had trouble enough sometimes with bug on Ferns we have received from other places before we have felt at liberty to put them along with the general collection, taking care to catch and kill all the insects we could, as the plants have been examined from day to day for a long time, though unless the plants infested are scarce and valuable they are not unfrequently thrown into the furnace and burned, plant, soil, and crocks altogether.

Thrips are great pests on many Ferns. Fumigating with tobacco or tobacco paper seems to be the best remedy (but this needs to be done very carefully or the Ferns will suffer greatly), and it will probably require repeating several times before all the thrips are destroyed. Very frequently Ferns are attacked by thrips because they have too much artificial heat. Many from Japan, New Zealand, Australia, and North America being hardy or nearly hardy, are sure to be preyed upon by insects if kept too warm. In the lovely family of *Gleichenias* are many which require very little artificial heat except to exclude frost, some of them not being injured by a few degrees of frost, but very liable to the attacks of thrips in heat. Scale may be destroyed by Mr. Hugh's capital insecticide, fir-tree oil, carefully used. Green and white fly will meet their death in the fumigations for thrips. Where only a few plants are infested with thrips or fly they may be dipped, if small enough, into the fir-tree oil solution, or in water containing soft soap in the proportion of 2 ozs. to a gallon of water, or treated to the spray of fir-tree oil from the spray-distributor. Speaking of soft soap and water, I find

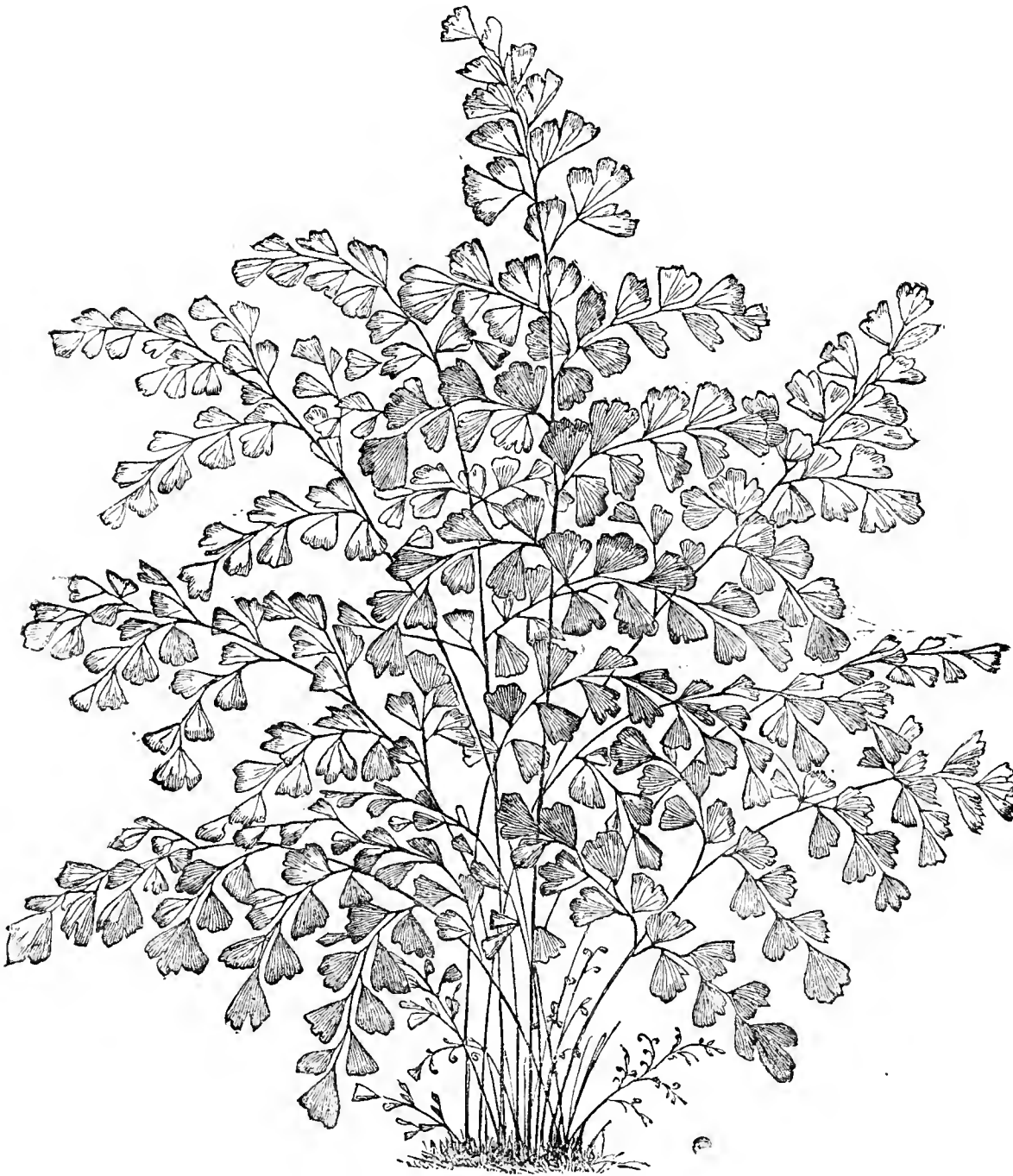


Fig. 25.—*ADIANTUM RUBELLUM*.

admixture of cinders or broken stone and leaf soil is the safest for general use.

[*Adiantum rubellum*, shown in fig. 25 is a charming Fern when well grown, its young fronds having a distinct rosy tinge. *A. ciliatum* fig. 27, page 133, is very useful for a basket or pot suspended from the roof of a fernery, its long narrow fronds being gracefully pendent.]

In the case of such Ferns as *Pellæas*, *Nothochlænas*, and *Aspleniums germanicum* and *septentrionale* and *Ruta-muraria*, and small Ferns whose natural habitats are crevices in rocks and walls, I find it an excellent plan to place the roots between two flat pieces of broken stone in potting, and also to use small pieces of the same mixed with the soil to secure abundant drainage and free passage for the air to the roots.

Respecting *Davallias*, I find many of them grow exceedingly well suspended from the roof of the house or against the wall, with their roots in moss containing compost, fastened on pieces of cork with thin copper wire. Here, with their fronds well exposed to the light

it convenient sometimes to beat it into a lather, and apply the lather to the plants, as being more effectual than dipping; and I may here say this is an excellent way to dispose of green fly on Roses out of doors, for this lather is certain death to them if used on the shoots where they are clustered together. I find one or two applications in the season quite enough to keep Roses moderately free from aphides.

I ought to mention the necessity for securing constant moisture about the roots of Ferns planted out of doors. A good supply of leaf soil or peat should form a part of the composition in which outdoor Ferns are to grow, so as to secure them against drought in summer time; and the addition of stones on the surface of the ground is most valuable, as they become great protectors from wind and sun, and are splendid conservers of moisture in the earth. I once read in one of the gardening periodicals a remark to this effect, that many gardeners sin against themselves in raking all the stones out of the ground they cultivate. I am fully persuaded of the truth of that remark, for I have been astonished to see the health and strength of vegetation on land which seemed to be half stones, and on hillsides where broken rock was more plentiful than earth. I am satisfied that such rocks and stones secure two essential objects—viz., protection from the drying influence of sun and wind, and sufficient looseness of material to allow the air to get well about the roots of trees, shrubs, and Ferns, or whatever grows in such material.

PEACH TREES CASTING THEIR BUDS.

I BELIEVE that more uncertainty exists on this question than upon any other connected with Peach-growing. I do not think that spring water will cause the buds of Peach trees to fall unless it contains some ingredient hurtful to vegetation generally. I am troubled each year by Peach buds falling, and think I know the cause, and in time hope to remove it. It may do good, therefore, to indicate the conditions under which it exists here.

Our Peach trees occupy the north side of a half-span house which till last autumn was planted with Vines on the south side. The Vines have now been removed, and the south side is occupied with a curved trellis planted with one-year-trained Peach trees. The trees on the north side have been planted perhaps fourteen years. I have had charge of them six years, and every year they have cast a considerable part of their buds; sufficient, however, always remaining on the trees to afford a crop of fruit, which ripens to perfection. When the Vines were in the house the Grape could not be cut till after Christmas, and consequently in our moist climate fire heat with a little air was necessary for the preservation of the Grapes, and to this firing after the Peach trees had cast their leaves I attributed the dropping of the buds, till this year, when I find I have been wrong, as part of the buds have dropped and a few are still dropping, while next to no fire heat has been used. Only on one or two occasions have we had to make the pipes more than lukewarm to keep out frost and damp from bedding plants and other softwooded plants kept in the house.

I have asked many experienced men at one time and another how they account for the dropping of the buds, and in most cases the answer has been that the border has been too dry in winter; but that is not the case here, as the border has always been moist at a depth of 18 inches when it has been examined, and I make a point of keeping Vines and Peaches well supplied with water at all seasons. Gishurst compound is used as a winter dressing, but not of sufficient strength to do harm, and I do not think that even a much stronger solution would prove injurious to healthy trees. A neighbour of mine who grows Peaches well says that he has frequently used it at the rate of 8 ozs. to the gallon of water.

My trees are growing in a very unsuitable soil for fruit trees. Judging from the condition in which it is now I should say that originally it was taken off the common, where there is abundance of tempting turf full of fibre, but that is all, and when that decays it becomes totally unfit for fruit trees. It does very well for bedding plants or anything else that has not to remain long in it. I have seen fair crops of Cucumbers grown in it with the aid of liquid and other manures. It is to this soil that I now attribute the casting of the buds, and as soon as the young trees, planted last autumn, commence bearing fruit, I shall



Fig. 26.—DAVALLIA HEMIPTERA.

endeavour to remove the evil. It is possible that the shade caused by the Vines may have prevented the thorough maturation of the young wood, as no blooms have fallen off the natural spurs formed on the old wood; but I think that would not account for all the evil, because not a hundred yards from where I write there is a span-roofed house with Vines on the roof and Peach trees in the centre under the Vines, and no buds fall there, but neither Vines nor Peaches make very vigorous growth. I shall be glad if this raises a discussion upon this important matter, as it deserves some consideration in the Journal, and if any light is thrown upon it, I, at least, shall have one more cause for gratitude to the paper I have admired for many years.—T. A. B.

IN reply to "L. T." the Peach trees outside are not affected the same as those inside, and I may also mention that they were watered from a different source—viz., a sewage tank close at hand.—ALPHA.

DRACÆNA GOLDIEANA.

THIS plant is by no means difficult to propagate, yet it is slow, and a long time must elapse before a stock can be raised if only one ordinary trade size plant is obtained to start with. The time necessary to raise a stock is undoubtedly the cause of its price at the present time, which has been maintained at a higher rate than any fine foliage plant of recent introduction. It has been said that gardeners do not appreciate it, and I certainly did not after obtaining a small but expensive starved plant which took me two or three years to grow into a specimen, but at the present time I think differently. I feel persuaded that this *Dracæna* will become one of our most popular plants, both for the embellishment of stoves and the furnishing of dwelling-rooms. The marbled markings of the foliage have a very pleasing effect, and show even more clearly by artificial than by natural light. Its foliage is strong and leathery—in fact, like *D. gracilis* in this respect, which is one of the best *Dracænas* that can be grown for room-decoration. Another advantage it possesses, and one that is of importance when plants are required for vases of a certain size, and that is, it can be grown when fully 2 feet high with large well-developed leaves in 5 and 6-inch pots. This is not the case with *Dracænas* generally, for to develop them as they should be they enjoy liberal root room. *D. Goldieana* and *D. gracilis* are exceptions to this rule, the former being very much finer rooted than any other variety.

Another recommendation this plant possesses is that large well-developed heads can be taken off and rooted without losing a leaf or making small ones at the top after it has become rooted; such at least, so far, has been the case with me. The orthodox system of mossing must not be practised, for I should be afraid to speculate on the length of time it would take before the stem emitted roots. The system to adopt is to take off the head at a joint where the wood is not too firm, for the firmer the base of the stem of the head the longer the space of time it will take to root. If the plant is strong and vigorous it should be severed about 1 foot from the top. The base must be cut clean with a sharp knife, and none of the foliage removed. The head should be inserted in a 4 or 5-inch pot filled with equal parts of loam and peat in which has been mixed a liberal dash of sand. A little of the latter should be placed in the centre for the base of the stem to rest upon. After insertion a good watering should be given, and the position in which they are to be placed entirely depends upon the season. At the present time, or when the sun has not much power, any position will do providing bottom heat can be given and a night temperature of 65° maintained. No propagating frame or handlight is necessary, for I am convinced the cuttings root better when treated like Pine suckers. In summer we should, however, place them in a frame or handlight if we could not guarantee keeping them well shaded from the sun without. The leaves, even if placed in a close propagating frame, never show signs of damping, as *Dracænas* generally do if highly coloured.

A portion of the remaining stem of the old plant nearest where the head was taken may be cut into lengths with a leaf attached and inserted in small pots, and every one in due time will root and form a plant. When the stem is thoroughly firm we do not advise it to be cut into lengths because they take so long to root, but place the plant in strong brisk heat, and when young shoots are made near the top slip them off with a small heel and root them. This is slow but sure, and many plants can thus be produced from one. Those raised from the stem will never make such fine plants in appearance as the heads make, but they can be grown on until they are strong, and then their heads can be rooted. By this means a stock of very fine plants can be produced. Plants in 5 and 6-inch pots from 12 to 18 inches high with large fine foliage to the base are conspicuous specimens for standing singly in vases. When well grown it is also a very striking plant in the stove, and fortunately does not quickly grow too large for purposes of decoration. —W. BARDNEY.

CARNATION SOUVENIR DE LA MALMAISON.—The rose and flesh-coloured varieties of the above *Carnation* are great favourites with most people. The blooms individually are of great size, and the fragrance delightful. They are very useful for conservatory decoration, also for cut flowers, as a single bloom will scent a large room. If large plants are required the old flower stems should be removed, the plants turned out of the pots, some of the old soil being removed, and then the plants placed in larger well-drained pots. The shoots should be layered equally over the pot. Healthy foliage down to the rim of the pot is thus obtained, and each layer has its own roots to support it, consequently much finer blooms are secured than by only having the old stem to

support all the shoots. If there are more large plants than are required, and it is wished to increase the stock, each layer may be taken off when rooted and potted singly. These are very useful to associate with small plants in the conservatory.—A. YOUNG.

FRUIT-TREE CANKER AND ITS CAUSES.

THE Astwood Amateur Gardeners' Society have had this subject before their meetings four or five weeks, with the results chronicled in the enclosed extracts, some parts of which perhaps might be worth a discussion in the *Journal of Horticulture*, which could not fail to be interesting and might be profitable.—J. HIAM.

[We readily publish the following summary of the proceedings of one of the meetings referred to.]

"The discussion on canker and its causes was resumed by Mr. Hiam, who said:—Gentlemen, you are all, no doubt, aware of the nature of the subject we intend to discuss and examine to-night; it is the postponed examination of insects, &c., by the aid of the microscope, in order, if possible, to arrive at the cause of so many fruit trees, such as Apples, Pears, Apricots, and Plums, cankering and dying prematurely. I will not occupy your time with a long paper on my own opinions, because I feel sure we shall be far better and more interestedly employed in observing the various insect life taken from the trees in a cankered state. I intend to submit three questions to the meeting for discussion, in order, if possible, to obtain the opinions of others, and I trust the replies will be short and to the point in order to save time. 1st, What is canker, as generally understood in fruit culture? My own reply is, that it is a premature decay of the wood, often the young vigorous shoots of one year's growth. 2nd, What is the cause? It is generally attributed to bad drainage of the subsoil; but not unfrequently we hear that the roots "are on the gravel," that was the only reason given that I can remember in my young days. Another will tell us that it is owing to sudden changes of temperature or climatic causes, such as from severe frosty nights followed by hot sunny days in spring. Then, again, we have some sorts of Apples which are, undoubtedly, more subject to canker than others. My idea is, as you are already aware, that we may, by careful investigation, with the aid of our needle glasses and the microscope, trace most, if not all, of our troubles to minute insect pests, existing and insidiously eating the inner bark until they surround a shoot and cut off the sap communication with the upper part, when it withers and dies. The shrinking of the bark, which is generally noticed at the base of a fruit spur, is the first indication that something is wrong. The shrinking or subsiding of the bark is as natural as it would be for ice on a pond to subside if the water were pumped out. If we take a knife and cut open the infected or diseased part we find the larvæ of insects thickly distributed over the dead space, eating the life out of it, as I will show you presently, also the insects which I believe to be the parents, and also undeveloped eggs thickly distributed on the bark, more especially on the base of bloom buds. As regards some sorts of Apples or other fruits being more subject to their attacks than others, may I not ask why insects should not have their preference for our best flavoured sap, as well as us individuals for the fruit? It is generally admitted that Ribston Pippin Apple is the most attacked, and, with me, Blenheim Orange next. I might go more fully into this question, but time will not allow. 3rd, What is the remedy? I say stamp it out, if possible, by pruning out every bit of dead wood; rub off all loose bark from the stems and boughs—first, I should have mentioned, placing newspapers or something under the trees to catch the rubbish, as this contains, it may be, thousands of insects' eggs and larvæ, which must be carefully collected and burnt. Now apply with a brush, or, to parts that cannot be conveniently got at, with a syringe, a solution of 1 oz. of coal-tar soap to a gallon of warm soft water; this will kill any stray insect in about a minute, as I have tried by experiment. As this is rather strong suds I cannot say whether it would be at all injurious to the trees; but in order to be on the safe side it would be advisable to well syringe with clean water before the suds dry on. If thought advisable a good dressing with limewash, in which a little soot and soft soap is added, may be applied as far as the brush will admit. I may say, as you know, I take much interest in our birds; we have (or rather should have, as Nature provided them, but, unfortunately, they have nearly disappeared from the land) several kinds of woodpeckers, with their long telescope-like tongues which they can insert into every hole and cranny in the bark and fetch out these lurking insect pests. We have a few of those interesting and useful tree-creepers also left, which feed exclusively, I believe, on bark insects. The whole of the tit tribe, and the beautiful golden-crested wrens also take their part in keeping down millions of insects unnoticed by the human eye.

"Mr. B. Harris stated, that having noticed the matter very carefully he felt convinced that insects, and not the gravel, were the cause of canker. Mr. Darby produced what he considered was a different sort of canker. The top part of the tree was all dead, the whole of the buds being taken with the canker. The buds being very sappy the insects preferred them as a depositing place for their eggs. The only thing he felt he could do was to follow Mr. Hiam's advice. Mr. A. Thornton thought that as far as he was concerned the idea as to insects being the cause, and not the effect, was rather new to him, but after hearing the remarks already made, and seeing the evidence produced, he was inclined to think there was something in it. The flow of sap was undoubtedly stopped by the canker, and the insects fed on it, as was seen by the leaders being quite gone. He felt, however, that the sort of tree and the nature of the soil had something to do with it. Mr. W. Thornton expressed a belief that the insects made a choice of the tree. The development of the insect, from the egg to the living animal, was shown under the microscope. The meeting was most interesting and instructive. At the close a hearty vote of thanks was passed to Mr. Hiam for the production of specimens, and to Mr. W. R. John for the use of his microscope."

[With the above matter Mr. Hiam sent us photographs which truly, as he says, represent that Apple-growing is not altogether a theory, but a practice with him. One tree, an over-burdened Cobham, being a favourite haunt of the birds, about forty of which have been reared during a period of six years in an old tea kettle. Our correspondent is worthily engaged in preserving birds that are useful in gardens, and in endeavouring to find

out the cause of canker, and devise means to prevent it. We know that dressing with much stronger insecticides than that recommended will not in all cases prevent the evil; but we shall be glad to learn that it will do so in the case of the trees immediately referred to. Insects are almost invariably found in cankered wood and bark just as they are on decayed roots; but is that sufficient evidence of their being the cause of the decay either below or above ground? Correspondents are quite at liberty to express their opinions on this subject.]

VINE ROOTS.

THERE can be no reason for doubting that the cultivation of Vine roots so that they can be maintained in quantity near the surface of the border is of much importance. When near the surface much more can be done in the way of periodical assistance in the shape of liberal dressings of manure, cow, horse, or artificial, or some of both. This is best done by forking up the surface and applying the artificial manure mixed with the fresh soil which is being added to the border, then a top-dressing of either cow or stable manure. The latter should not be applied in as heavy a dressing as the cow manure; 2 inches of stable dung is quite thick enough, 3 or 4 inches of cow dung may be safely applied.

A thorough watering should be given, and the border be maintained throughout the season in such condition as regards surface moisture as will induce the roots to remain and even come to the surface, where they can be more easily managed and supplied with nourishment, which in due time they will return with interest in the form of a good crop of fruit.

When a border is allowed to get dry near the surface, depend upon



Fig. 27.—*Adiantum ciliatum* (see page 130).

it the roots will descend in search of moisture, and often enter a sub-soil that can afford them little nourishment, though finding more of the moisture they love so well. Vine roots will penetrate walls, go through below pipes, paths, and all sorts of obstacles in order to obtain moisture, therefore it is a great pity when they are denied what they so much require by those whose interest it is to supply their wants.

Hand-watering, especially when the "chief" is not present, are often too superficial. It is astonishing what a quantity of water a border can absorb before it is thoroughly soaked, as it should be where the drainage is good. A hose therefore should be used wherever practicable, the water being allowed to run for some time on one portion of the border, and then the hose shifted along. This can be managed and other work carried on by the man in charge, and a great saving in labour effected. The danger of chilling Vine roots by a too liberal supply of water is enlarged on by some cultivators, but the writer is inclined to think that far more Vines suffer from insufficient water than from excess, always remembering that good drainage is of much importance.

When a border is so situated that the water cannot pass freely away, and more than the soil can take up be given, every effort should be made to remedy the defect or water should be more carefully applied. When top-dressing a border, as many of the roots as possible should be taken up and laid among the new soil, some

of the largest of them being nicked with a knife; they will then send out more young roots to feed on the good viands supplied.

When long fibreless roots are formed some of them should be pruned, so that they will emit numbers of young roots. This is the great advantage of Vines grown on the root-pruning system. Instead of a coil of large roots, which have to be unwound and laid out when a Vine grown on the ordinary system is planted, we have a ball bristling on all sides with short fibry roots, ready to work their way steadily into every portion of the border.

Vine roots, in common with those of many other plants, attach themselves to bricks, stones, pieces of charcoal, &c., though it is not advisable to put too many of these in a border, as the space is better occupied by substances calculated to yield more nourishment. If good fibry loam is to be had, that and a mixture of horn shavings, ground bones, and wood ashes form a capital compost for successfully growing Vines in.

By some it is supposed that lifting Vine roots, subjecting them to a good pruning and relaying them in new soil, is such a hazardous operation that it is better left unattempted, and annual top-dressings are put on borders where there are no roots within 2 feet of the surface. However, the number of those who entertain these ideas is every year growing smaller, and Vine roots are pretty generally considered as capable of being manipulated to an extraordinary extent, and brought entirely under the control of cultivators.

The question of inside v. outside borders has been often discussed, and it must be said that good results have been obtained from both. If, however, I were compelled to choose which I would be restricted to, certainly inside borders would be chosen.

With ample means of watering, drainage as it ought to be, good soil, &c., inside borders seem to have the advantage, and grand results have been obtained from them.

Some who commence Grape-growing, especially when the Vines are in outside borders, commit the mistake of making-up too great a width of border at once. Far better add a little yearly than have a great mass at once, which the roots, when they have not been subjected to the pruning system, run right through without staying to search out the good things provided for them. Root-pruned Vines planted in a narrow border, carefully top-dressed, sufficiently watered, and only allowed an extension of border when it is apparent that they have filled the first portion with numerous fibry roots, are sure to produce better results than Vines with long roots planted in a wide border and allowed to run right through at once.—READER.

HARDY PLANTS AND THEIR SYNONYMS.

YOUR correspondent, "Specialist," who writes on this subject at page 84, will do a great service to gardeners if he can persuade nurserymen to adopt anything like uniformity of names for the plants they send out; and perhaps for specific types no more convenient standard could be adopted than that of the Kew herbarium. At the same time it must be borne in mind that it is not practicable or convenient in horticulture to be limited to the use of botanical specific names. There are multitudes of instances in which the botanical specific type is a comparatively worthless plant, but varieties of it, developed by cultivation, are highly ornamental. This remark applies to not only what are properly called florists' flowers, but also to a very large proportion of other species which have been long in cultivation. On going through any class in the herbarium at Kew we shall find that often a varietal name is recognised there in addition to the specific name. It is perhaps too common for nurserymen to adopt this varietal name as specific, dropping the intermediate or true specific name. As an instance of the confusion caused by this we may particularise such additions as "alpina" or "maritima," so the true *Campanula alpina* is a dwarf plant not unlike a diminutive Canterbury Bell in appearance. I never knew it sent out true to name by any nurseryman except Fröebel of Zurich, and I never knew anyone who could keep it alive in England, though it is perennial, for more than one or two years; but though I have never known *C. barbata* sent out as *C. alpina* we receive several alpine varieties of *C. rotundifolia* and *C. rhomboidea* under the name.

"Specialist" says he writes for those who have not a large collection, and besides that his list might be profitably supplemented: I have a very large collection of hardy plants and their varieties, and with every wish to support and assist "Specialist" in his laudable endeavours to promote correct naming, I must say this, a very large proportion of the names contained in his second column have something to be said in their favour, though I may add that in many instances I know by experience that the plants sent out by those names are not the true varieties to which they properly belong. I will select twelve synonyms taken from this second column to illustrate my meaning, though that number might be very largely increased.

Campanula garganica.—The varieties now classed together under

this name at Kew are so very distinct and differ so much in merit that beginners having small collections would hardly suspect them of being identical. It is excusable, therefore, to distinguish these varieties if only we can get the same variety called by the same name.

C. glomerata.—If "Specialist" will visit Mr. Ware's nursery in July, he will find at least six distinct named varieties of this plant differing in size and colour, including the three names specified. All these varietal names have some authority. I have all Ware's varieties, and they keep their distinct character. The greatest favourite amongst them is the one usually sold as "speciosa," which has lavender-coloured flowers.

C. latifolia.—I can hardly think that any respectable nurseryman ever sold this under the name of *C. Van Houttei*, a very distinct hybrid, of which *C. latifolia* is not even one of the parents. *C. macrantha*, however, is a decided improvement of cultivation on the typical native *C. latifolia*. I grow plenty of both.

C. persicifolia.—There are many very distinct forms of this, which must be distinguished by name unless we are to see them in flower before we buy them. For instance, the name *coronata* is given to varieties having saucer-like collars beneath the bells, a peculiarity which Canterbury Bells also have.

C. fragilis.—The variety *Barrellieri* is distinct from the type, being stronger in growth and having hairy leaves. It is also called *C. fragilis* var. *hirsuta*, and I had both these names for it from the Kew herbarium itself. There are white varieties of both these, but they are very hard to keep alive.

C. Porthenschlagiana.—The authorities differ so much between this name and *C. muralis* for the same plant that at the Kew herbarium both names are recognised, the names of the authors which adopt each being appended.

Enothera biennis var. *Lamarchiana* is a cultivated variety having flowers twice as large and a habit twice as branching as those of the type, which need never be grown beside it.

Æ. fruticosa.—Though I never could make out the alleged distinctions between the dwarf forms of this and *Æ. Fraseri*, the variety *Æ. Youngi* is very distinct and superior as a garden plant. I will with pleasure send "Specialist" plants of both to flower and compare if he will write to ask for them.

Papaver alpinum.—This is quite distinct from *P. nudicaule* from a gardener's point of view. It is smaller both in flower and leaf. The two hybridise readily, and the progeny seem to run together.

Saxifraga ligulata.—This is earlier in flower, smaller in growth, more free in flowering, and altogether superior than *S. crassifolia*. Unfortunately it is not hardy in cold gardens, whilst *crassifolia* is hardy everywhere.

Trollius asiaticus.—This fine hardy plant, which I grow in abundance, has its flowers as open as those of *Caltha palustris*. The colour is orange-yellow. Those of *Fortunei*, syn. *japonicus*, are far larger and more globular, and are always killed with me by the east winds of spring. The two are quite distinct for the gardener.

Trollius europæus.—In its cultivated form this varies so remarkably in size, cuttings of leaf, and colour, that we must have distinctive names to know what we mean in speaking of the varieties. These examples might easily be doubled or trebled in number from the list in question; but I hope I have said enough to justify nurserymen in not confining themselves to typical specific names in enumerating the treasures of their gardens. I do not question that reform in names is needed to secure uniformity; still, botanical nomenclature can never be final. I notice that in the "Genera Plantarum," which must long continue a standard authority, that the number of described species in many genera is reduced by half; but botanists will never agree as to the exact amount of divergence which is to constitute a species, and intermediate forms will ever be turning up to fill gaps between supposed differences. Anyone who collects and grows from seed such a genus as *Campanula*, or *Thalictrum*, or *Veronica*, or *Aquilegia* will soon find how difficult it is to draw hard-and-fast lines, and how excusable it is to give names to distinct varieties.—C. WOLLEY DOD, *Llandudno*.

THE VINEGAR PLANT.

A CORRESPONDENT of the Journal, "H. T. H.," wishes to know where he can buy a Vinegar Plant. If he is not in urgent need of it he can make or develop one for himself, and the process is interesting. It is as follows:—Dissolve in three quarts of water half a pound of treacle and a quarter of a pound of sugar. It is best done over the fire, but the liquid must neither burn nor boil; then place it in a jar and cover it up closely, keeping it afterwards in a warm room for about six weeks, when the fungus or Vinegar Plant will appear on the surface. A plant thus obtained may be cut into a number of pieces, and each becomes a separate plant, with the power of turning to vinegar any sweet solution upon which it is floated.—J. R. S. CLIFFORD.

THE flabby piece of fungus which housewives used to treasure as a

Vinegar Plant has not the power of itself of converting alcohol into vinegar, but is a disease similar, say, to the growth of lichens on an Apple tree, and consequently highly undesirable.

The acetous fermentation is brought about by a special ferment called *Mycoderma aceti*, somewhat like the cells of yeast in appearance, only much smaller. The so-called Vinegar Plant may have this negative virtue—that is, it is difficult to imagine it to exist without enclosing some of the true ferment in its leathery embrace.

My advice to "H. T. H." is that he use his cider as such, and leave vinegar-making to those who know more about it; but if he will try his hand, let him add a few gallons of sound vinegar to his cider, half fill the cask with the mixture, and leave the bung out. The added vinegar will almost certainly carry germs of *Mycoderma aceti* with it, and the acidity so brought about will hinder the growth of an analogous but detrimental ferment called *Mycoderma vini*, which affects cider.—A VINEGAR MAKER.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 12TH.

THE contributions from nurserymen and gentlemen were so numerous on this occasion that quite an exhibition was provided, Cyclamens and Primulas being very largely represented. Orchids, too, were very attractive, and with Camellias, Roses, Hyacinths, Tulips, and miscellaneous plants, rendered the meeting a most interesting one. Nearly all the members of the Committees were present.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Present—Messrs. J. Lee, Phillip Crowley, J. Ellam, R. D. Blackmore, G. Bunyard, W. Denning, C. Silverlock, J. E. Lane, James Smith, John Burnett, H. W. Sutton, J. C. Mundell, J. Roberts, S. Lyon, Sidney Ford, G. Goldsmith, and G. Paul. The Apple, Perkins' A1, exhibited by Messrs. T. Perkins & Sons, Northampton, at the last meeting, was cooked and tested by Mr. Barron at the request of the Committee. Some were baked and others boiled in dumplings, and in both cases they turned out well, the substance being well retained, with the pulp quite tender, yet somewhat dry and wanting in briskness, requiring very little sugar. It was considered very good, and was awarded a first-class certificate. A bronze medal was awarded to Messrs. Lane & Son, Berkhamstead for a collection of sixty dishes of fine Apples, Lane's Prince Albert being in excellent condition; Hanwell Souring, Norfolk Beefing. Mère de Ménage, Annie Elizabeth, Hoary Morning, Galloway Pippin, and Cox's Orange Pippin being well shown. A bronze medal was also awarded to Mr. G. Goldsmith, Hollandsbury, Tunbridge, for a collection of fifty dishes of Apples, some of which were exceedingly fine, especially noteworthy being Blenheim Pippin, Lord Derby, Hollandbury, Cox's Pomona, Golden Noble, Hall Door, and Winter Queening. Several dishes of Apples were also shown from Chiswick. Mr. T. Bonsall, The Gardens, Campsmead, Doncaster, sent samples of a seedling Onion which was not considered of special merit, and Mr. Robert Doe, The Gardens, Rufford Abbey, Notts, sent a seedling Apple that was also passed. John Lee, Esq., sent a fruit of a large Orange from Java, which was very juicy and of good flavour. Mr. S. Ford, Leonardslee, sent two dishes of the bright red Apple Margaret Henrietta. The Cranston Nursery Company sent samples of Apple Herefordshire Beefing. Mr. Turner, Slough, showed tubers of Schoolmaster Potato, large and even.

FLORAL COMMITTEE.—Section A.—Mr. John Fraser in the chair. Present—Messrs. C. Hill, J. O'Brien, J. Dominy, H. Ballantine, J. Hudson, G. F. Wilson, J. Woodbridge, H. Herbst, H. Williams, T. Moore, Rev. G. Henslow, and Dr. Masters. Section B.—Shirley Hibberd, Esq., in the chair. Present—Messrs. Bennett, W. Bealby, J. Llewellyn, J. Douglas, J. James, J. Child, G. Duffield, D. Lathbury, H. Turner, W. B. Kellock, and H. Cannell. Messrs. Veitch & Sons, Chelsea, contributed very largely to the interest and beauty of the display, a considerable space being occupied with groups of Cyclamens, Primulas, and miscellaneous plants. About 150 Cyclamens were shown in extremely fine condition, with large handsomely marbled leaves and mauve, white, crimson, or parti-coloured blooms. The plants were mostly in 48-size pots, and bore twenty to thirty flowers. The Primulas were white and crimson, arranged in alternate rows; the flowers large, of good substance, and in compact heads well above the foliage. A small group of the charming *Freesia refracta alba* bearing abundance of its pure white exquisitely fragrant blooms was much admired. This is a useful and beautiful plant, and well worth the attention of gardeners, it was figured and described in this Journal, page 171, vol. ii. Several plants of *Allium neapolitanum*, with neat umbels of white flowers, were shown, and proved the value of the plant for early flowering. It was also figured in this Journal, page 451, vol. vi. Among other notable plants were the following:—*Pinguicula hirtifolia*, a diminutive plant about an inch high and across, with small flowers, white in the throat, edged with purple. This was referred to the Scientific Committee. *Rhododendron Curtisii luteolum*, a Sumatran plant of rather straggling habit, but with neat bell-shaped dull yellow flowers 1 inch in diameter; and *Dendrobium macrophyllum* var. *Burkei*, a distinct variety, flowers large, sepals and petals white, the lip tinged with pale purplish mauve at the base. A vote of thanks was accorded for a large pan of Comte Brazzi's double white Neapolitan Violets, the blooms being of great size. A silver-gilt Banksian medal was awarded.

Mr. J. James, Woodside, Farnham Royal, Slough, staged a group of 100 dwarf freely flowered Primulas, comprising crimson, pink, white, and a rich bright red, a wonderful colour. Several seedling Cinerarias of great merit were shown, and some were certificated and are described below. Mr. R. Clarke, Twickenham, was awarded a silver Banksian medal for a group of 120 healthy Cyclamens. Rose, crimson, pink, white, and crimson-tipped were the colours represented. The flowers were all remarkable for their great size, the breadth of the petals, and the purity of the colours. Messrs. Barr & Son, King Street, Covent Garden, sent a collection of hardy flowers, chiefly Narcissuses and Irises. The early *Narcissus pallidus præcox*, with clear yellow crown and pale yellow sepals and petals, was very attractive, and the purplish mauve delicately tinted *Iris stylosa* was equally beautiful, together with flowers of the fragrant *Iris reticulata* var. *Krelagei*. Mr. Child, gardener to J. Bell, Esq., Garbrand Hall, Ewell, showed several pure white and crimson Primulas. The flowers were large and of great substance.

A large group of Cyclamens, comprising over 150 plants, was contributed

by Mr. J. Wiggins, gardener to W. Clay, Esq., Grove Road, Kingston. A number of varieties was represented, and several specimens were in extremely fine condition, bearing three or four dozen flowers in 52-size pots. A cultural commendation was awarded for one extraordinary specimen of a white *Cyclamen*, General Gordon, in a 9-inch pot. It was more than 2 feet in diameter, with abundant vigorous foliage, and over 300 flowers and buds. A good collection of *Cinerarias* also added to the interest of Mr. Wiggins's display. A silver-gilt Banksian medal was adjudged for these collections. Mr. J. Bennett, Shepperton, sent a box of Tea Rose William Francis Bennett, the variety which has become so great a favourite in Covent Garden Market and in America. In the bud or half-opened state it is very beautiful, of a clear rich rosy purple hue, the foliage being small, neat, and bright green. A cultural commendation was awarded to Mr. R. Aldous, gardener to G. Heriot, Esq., Cholmondeley Park, Highgate, for a plant of *Vanda Cathcartii*, with eleven flowers on three spikes. A vote of thanks was accorded to Mr. A. Waterer, Knap Hill, Woking, for a fine plant of *Andromeda japonica*, 3 feet high and as much in diameter, profusely flowered. Mr. Waterer also contributed a most tastefully arranged group of Primroses, margined with bunches of red and white Heaths. A great number of varieties was represented amongst the Primroses, crimson, maroon, yellow, white, and purple were finely shown. A silver Banksian medal was awarded for the group. Eight boxes of Camellias were staged by Messrs. Wm. Paul & Son, Waltham Cross, Herts. Marchioness of Exeter was finely represented, the deep rose blooms being large and well formed. The delicate rose L'Avenir, the rich red Eximia, the dark red Lecana superba, and the white Fimbriata and alba plena were the leading varieties. A silver Banksian medal was awarded.

Mr. B. S. Williams, Upper Holloway, had an extensive and bright display, occupying a considerable space on one side of the conservatory. *Cyclamens* were shown in fine condition. A group of sixty well grown Hyacinths and Tulips were much admired, the spikes of the former being of great size and colours clear. *Primulas fimbriata rubra* and *alba* were staged in good condition. A silver Banksian medal was awarded. Mr. H. B. Smith, Ealing, had a good group of *Cyclamens*, the white varieties being extremely fine and free, and a red variety named Crimson King was remarkable for the rich colour of the blooms. Mr. Edwards of Hillingdon also sent several seedling *Cyclamens*. Messrs. Carter & Co., High Holborn, sent a dozen baskets of *Primulas* representing the varieties Holborn Blue, Holborn White, Holborn Vermilion, Holborn Ruby, Magenta, Gold-leaf, Pearl Salmon, and several others, the colour being mostly very good. A neat bluish mauve *Polyanthus* named Amethyst was shown by the same firm, and a vote of thanks was accorded for the collection. A vote of thanks was awarded to Mr. O'Brien, Harrow-on-the-Hill, for a plant of *Davallia Mariesi* on a neat stand, the rhizomes having grown closely together in a hall-like form. Messrs. Stuart & Mein, Kelso, N.B., sent a plant of *Spiraea confusa* with numerous small umbels of neat white flowers. Mr. Wells, Fern Hill, Windsor Forest, showed a basket of a large single dark blue Violet named Wellsiana, the blooms being nearly an inch in diameter. A vote of thanks was accorded to Mr. J. Walker, Thame, for a freely fruited plant of *Fuchsia procumbens*, several large pots of *Lachenalias*, and flowers of *Tritoma uvaria*. Mr. E. Wilson, gardener to H. M. Pollett, Esq., Fernside, Bickley, was accorded a vote of thanks for a collection of Orchids, comprising *Odontoglossum Rossi majus* and *rubescens* and *Phalaenopsis Stuartiana punctatissima*, the last being a finely spotted form. Mr. West, gardener to Major Lendy, Sunbury House, Sunbury, was awarded a cultural commendation for a healthy plant of *Cattleya Percivaliana* var. *citrina*, a very distinct form with a broad lip, yellow in the throat and rich crimson at the tip.

Messrs. H. Cannell & Sons, Swanley, had a group of *Primulas* comprising some well-grown plants, and such fine varieties as The Queen, bluish white; Swanley Giant, Swanley Red, and Princess Beatrice, together with plants of the old Double White, and a fine single variety which was certificated. Votes of thanks were accorded for this collection and a box of large brilliantly coloured *Cineraria* blooms. Mr. H. Heims, gardener to F. A. Philbrick, Esq., Q.C., Oldfield, Bickley, showed two fine plants of *Lælia harpophylla* with over twenty flowers each. A cultural commendation was awarded. *Odontoglossum crispum aureum* was represented by a plant bearing a spike of sixteen flowers, and a vote of thanks was accorded for some fine *Cattleya* flowers, varieties of *C. Trianae*, and a good *Angiæcum sesquipedale*. Mr. J. W. Cummins, gardener to A. H. Smee, Esq., Wallington, sent a plant of *Comparettia macropleuron*, bearing a spike of eight large flowers. A vote of thanks was accorded to Mr. J. Hodges, gardener to Edwin Wright, Esq., Gravelly Hill near Birmingham, for flowers of a fine *Odontoglossum* named *Alexandrae alium superbum*, *Calanthe vestita lutea alba majus*, and *Lælia alhida*.

First-class certificates were awarded for the following:—

Cattleya Percivaliana var. *alba* (R. P. Percival, Esq.).—This differs only from the type in the sepals and petals being pure white, the lip being rich yellow in the throat.

Lælia anceps Williamsiana (F. Sander & Co.).—A very distinct variety with white sepals and petals; the lip also white, but yellow in the throat and streaked with purple. The flower is 4 inches in diameter.

Odontoglossum Pollettianum (Mr. E. Wilson, gardener to H. M. Pollett, Esq., Bickley).—A hybrid of great beauty, somewhat like a large *O. odoratum* or *O. gloriosum*, with large chocolate spots and blotches.

Oncidium Jonesianum (Mr. G. W. Cummins, gardener to A. H. Smee, Esq., Wallington).—A distinct species with terete leaves 8 to 12 inches long. Flowers 2 inches across; sepals and petals greenish with reddish brown spots; the lip white, yellow at the base, and a few red spots.

Oncidium anthocrene (Messrs. F. Sander & Co.).—Flowers 2½ inches across; sepals and petals narrow, curled and undulated, brown, barred at the base; the lip small, whitish at the tip. The panicles are from 1 to 2 feet long, with short branches bearing two or three flowers. The pseudo-bulbs are 3 to 4 inches long, flat and fluted, the leaves 12 to 18 inches long and 2 inches broad.

Parrotia persica (W. Paul & Son).—Flowering branches of this shrub were shown, the chief beauty of which was the abundant red anthers in dense clusters surrounded by brown scales. The leaves assume some remarkably rich and varied tints in the autumn, and it is then very attractive.

Saxifraga Burseriana (Carter).—One of the dwarf tufted type of *Saxifragas*, with glaucous needle-like leaves and white flowers half an inch across and borne on stalks 2 inches high.

Cyclamen Dame Blanche (H. B. Smith).—An exceedingly fine variety, pure white, the petals 2 inches long and 1 inch broad, of great substance.

Cyclamen giganteum delicatum (Edwards).—Flower of great substance, the petals an inch broad and 1½ long, pure white, tinged with purple at the throat.

Primula Emperor.—Flower 2½ inches in diameter, fimbriated at the margin, of a distinct rosy red colour, and yellow centre. A grand flower, one of the finest that has yet been certificated.

Cineraria Lottie Williams (James).—Very distinct, finely formed flowers, deep maroon purple, with ring of light crimson near the centre, the disk white.

Cineraria Great Eastern (James).—A grand flower, 3 inches in diameter; the petals broad, of great substance, and very bright crimson in colour. A magnificent variety.

Epacris Diadem (Veitch).—A handsome variety; flowers deep rose, three-quarters of an inch long, and closely set on the upper portions of the branches.

Epacris The Premier (Veitch).—Similar to the above in size of flower, but of a softer delicate pink hue; the limb of the corolla is rather broader, and the flowers more closely set.

Jambosa acida (Williams).—The specimen shown was a small tree 8 or 9 feet high. The leaves are 2 feet long and 1 broad, elliptical, deeply ribbed, the older ones dark green, the young ones of a rich purplish red. The certificate was granted provisionally upon the name being correct.

Narcissus pallidus præcox (Barr & Son).—An extremely early variety flowering in January. The crown is 1½ inch deep and 1 inch across at the mouth, clear yellow, the margin irregularly cut. The sepals and petals are 1½ inch long, paler than the crown, nearly white, and spreading. This was certificated upon the understanding that it had been grown out of doors.



KITCHEN GARDEN.

Parsley.—This is one of the most important of all kitchen garden occupants. In every kitchen of any importance it is in daily demand throughout the whole year, and any blank in the supply often causes great inconvenience to the gardener and cook. Last year's plants are not so luxurious as they were in the autumn, as many of their most robust leaves have been gathered or died away, and where they are withered and useless they should be removed, the ground around the plants being stirred with the Dutch hoe. This will induce the plants to make fresh growth, which will be very acceptable until the spring-sown crops are ready, but old plants sown throw up flower stems when the mild weather comes, and then the produce is inferior. The gatherings from spring sowings are always best in summer, and a small quantity of seed should be sown at once. Carters' Fern-leaved is a superb variety for garnishing, and Myatt's is an old, well-known, and valuable sort. The ground for the reception of the seed should be well manured and quite free from all grubs. The seed may be sown in rows about 1 foot apart. Where seed was sown late last autumn, and the plants are now only about an inch high and very close together, a number of them should be drawn out and planted elsewhere. Soot, lime, and salt applied to the soil in moderate quantities are good grub-preventives.

Autumn-sown Onions.—These now in beds and rows close together should be thinned and planted in the soil prepared for them as advised a fortnight ago. They delight in rich soil and a sunny position. We plant thousands at this time in rows 1 foot apart, and 6 inches from plant to plant. They are dibbled in without much attention, as they are hard to kill and easily grown. A good patch of the Onions should be found in every well-managed kitchen garden.

Spring Onions.—A few rows of these should be sown, Webb's Banbury or Suttons' Reading being good varieties. If the ground is deeply dug and highly manured, and the seed put in when the soil is in fine order, the bulbs will stand a good chance of becoming splendid exhibition specimens before the month of August. We always secure the largest spring Onions from seed sown about this time.

Peas.—A general sowing of William I. and Advancer or First Crop, Sangster's No. 1, and Daniel o'Rourke may safely be made now in the open quarters in all gardens. Drills 4 inches deep and 5 feet apart will suit all the varieties named.

Parsnips.—In favourable localities the main crop of these may be got in on the first favourable opportunity. The soil best suited for their finest development is a deep, free, and open substance, rich, but free from fresh manure recently introduced. The rows must be from 15 to 18 inches apart, and The Student should be grown for quality, and Carters' Maltese variety for size and exhibition.

Rhubarb and Seakale.—Where new plantations of these are contemplated they can be proceeded with at once, as the growths are pushing up now, and will be more liable to be checked by-and-by.

Shallots.—These should be sorted and planted, only sound bulbs being used. They may be placed in rows 6 or 8 inches apart each way, and each set should be almost covered with soil. Where the latter is heavy a little sand put around each bulb is a great assistance to growth.

Asparagus.—All operations connected with this must be finished quickly. It is not yet time to sow or plant, but all top-dressing and

enriching the soil in connection with plantations from which spring cutting has to be done should have immediate attention. Top-dressings of half-decayed manure, soot, salt, and guano are of the greatest benefit to Asparagus, especially in poor soils.

Mushroom Beds.—Those to produce crops in April and May should be formed at once. A cool shed we find the best situation for them. Old beds which show no energy and are dry and lifeless may be revived, as a rule, by giving them a thorough supply of water heated to 90°, covering them immediately afterwards with a thick coating of dry hay or straw.

Celery.—A pinch of seed may be sown in a 6-inch pot to produce a few scores of early plants, which are often required, and are valuable before the main sowings come in. The seed will germinate and the plants grow freely in any place where the temperature is 60°.

Cucumber, Tomato, Vegetable Marrow, and Egg Plant seeds may all be sown singly or in small groups in pots. Good soil and a gentle heat suits them all. Plenty of light will produce robust fruitful plants, but none of them must as yet experience any check at the roots, and the utmost care should be taken that all young plants have timely attention in being potted or planted out.

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—The fruit in this structure having commenced swelling freely, and the set being thick, the thinning should go on gradually, removing the smallest and worst placed until there are few more retained than will be required for the crop, about one fruit to every square foot of trellis covered by the trees. With the trees in good health and proper treatment there is no need to fear any of it not stoning safely, yet it may be advisable to leave a few more fruits to meet casualties until the stoning is effected, when they must be at once removed.

Disbudding.—Daily attention is necessary with trees subjected to early forcing. Begin with the gross foreright shoots, as these would take from those at the base, which it is desirable to encourage, so that strong bearing shoots may be secured for another season. Remove those not required for extension a few at a time, stopping those retained for attracting the sap to the fruit about the third leaf, and these must be on a level with or above the fruit. It is advisable to remove those on the under side of the trellis first, and then commence with those on the upper, from which the shoots for next season's fruiting should be selected. Avoid giving a check to the roots, as this may cause the fruit to swell imperfectly, if not to fall.

Feeding.—If fermenting materials have been used in the house they will now be cooled, or should be allowed to do so, as there is danger of the foliage being damaged if fresh material is introduced so as to give off a large amount of ammonia vapour. The materials, if any have been employed, may now be spread over the surface of the border as a mulch, or well-worked horse manure introduced to the extent of 2 or 3 inches thickness, and the borders and paths may be sprinkled two or three times a week with liquid manure. Liquid manure may be given whenever water is required in the case of trees that are weak from age or hard forcing, but it must not be given to trees in a vigorous condition until a later stage. If the roots are outside they must be well protected with litter or Oak leaves, with shutters to throw off cold rains or snow.

Syringing.—Do this twice a day, in order that every part of the old wood and foliage may be thoroughly cleaned with water, which ought to be soft, clear, and a few degrees warmer than the house. If the syringing be properly attended to there will not be any red spider. In dull weather syringing must be lessened, and the afternoon syringing must always be done sufficiently early to allow of the tree becoming fairly dry before dark.

Temperature.—Do not exceed a temperature of 55° at night except on mild nights, and on severe nights the temperature may fall to 50° in the morning, and from fire heat in the daytime allow an advance of 5° to 10°, running up to 80° from sun heat, with a circulation of air, commencing to ventilate at 65°, and close at 70° with a copious syringing.

Succession Houses.—The trees in the house started early in the year are in splendid condition, blooming strongly, and must have attention daily after the pollen becomes ripe for dispersion. The weather is so mild that bees if at all near will find the blossoms out, and do the work of impregnation far better than any brushing or shaking. Although we do not advise syringing the trees when in flower, we always sprinkle the floors, borders, &c., in the morning and early afternoon unless the weather be damp and dull, when it is of course omitted.

Late Houses.—The trees are not so forward as was at one time anticipated, but they are looking well and promise abundant bloom. Where the trees are at all weakly draw the hand the reverse way of the growth on the under side of the shoots after the buds are sufficiently swelled, so as to remove those on the under side of the trellis. Look to the roots of trees in inside borders, and give a thorough soaking of water if there be the least evidence of dryness. Give abundance of air, and so retard the blooming as much as possible.

Pines.—Plants that have been wintered in 7 or 8-inch pots should be placed in their largest pots before they are weakened by the roots becoming too much matted together. As the operation must be carried out shortly a sufficient quantity of potting material should be housed at once, in order that it may become drier and in a fit state for breaking up, which should be done by hand, tearing the sods into pieces with the hands, discarding the small and retaining the fibrous portion. Pots

11 inches in diameter will be suitable for Queens, and 12-inch pots for the more robust-growing varieties. Let the soil in potting be firmly rammed round the old balls of soil, water at once to settle it, and plunge the pots in a brisk bottom heat of about 90° or 95°, keeping the top heat 60° at night, 65° by day from fire heat, and from 70° to 80° from sun heat. It is not advisable to encourage much top growth until external influences are more favourable from the increased light. Make the needful provisions for potting suckers which are to be started next month. If space will admit it will be advisable not to remove the suckers from the stools until they are wanted for starting, as there is a decided advantage in having them fresh.

Fruiting Department.—Early-started fruit will be well advanced for flowering. Avoid wetting the flowers, as the moisture which forms at the base of the fruits results in the discoloration which sometimes exists about the base of the pips. Watering must be attended to as necessary, never water until it is needed, and then apply it liberally. Maintain a steady temperature of 70° to 75° at night, 75° to 80° in the daytime, 80° to 90° with sunshine, ventilate at 80°, and close at 85° with a moderate amount of moisture obtained by damping available surfaces.

PLANT HOUSES.

Odontoglossums.—Without further delay these plants should be repotted, if not already done. Remove carefully from amongst the roots the whole of the decomposed material, and wash their roots in tepid water. The plants may then be repotted in the same or larger pots, according to the quantity or quality of their roots. The pots to be used should be three parts filled with crocks or charcoal, and then covered with a layer of moss. The compost should consist of one-third peat fibre and the remainder living sphagnum moss and lumps of charcoal, which should be carefully laid amongst the roots, and the plants when finished well elevated above the rim of the pots and surfaced with a layer of living moss only. After repotting every attention should be given to watering, damping amongst the pots, and syringing the moss, so as to encourage it to commence growth as rapidly as possible.

Cypripediums.—The majority of these may now be repotted, but in turning them out of their pots or pans be careful not to injure their roots, for they generally cling tenaciously to the sides of the pots in which they are growing. In many cases it is necessary to break the pots in which they are growing, and this had much better be done than injure their roots in trying to turn them out without. All the smaller plants are repotted annually, while those of a larger size are only operated upon every second year. From the latter pick away all the surface material that it is possible to remove and supply fresh, while from the smaller specimens remove the whole. Use for these plants equal parts of peat fibre and sphagnum moss, with lumps of charcoal or pieces of crocks added. These plants while in active growth require abundance of water, and the material about their roots soon becomes decomposed.

Dendrobiums.—Some of the earliest plants of *D. nobile*, *D. heterocarpum*, *D. Wardianum*, and others have just commenced to form roots from the young growths, and should be repotted or top-dressed without further delay. These do well either in pots or baskets suspended from the roof of the stove; the first is useful in pots for removal to the conservatory when in flower. If repotted last year they need only be top-dressed at the present time, but if not turn them out of their pots, and pick away all decomposed material. Do not disturb portions of charcoal or crocks to which their roots adhere. Replace them in the same or larger pots in a mixture of peat fibre three parts to one of moss, with charcoal used liberally in lumps. The other varieties may have if grown in baskets all the material possible removed from them and fresh supplied; for these the moss should predominate. Syringing, with an occasional soaking of water, will be ample until the roots are working freely, when abundance of water should be given.

Calanthes.—Those who retarded a batch of these as late as possible before starting, and then brought them forward in a temperature of about 55° after they commenced showing their flower spikes, will find them invaluable when the main stock of these are over. *C. v. Turnerii* is the best late variety, but other forms of *C. vestita*, as well as *C. Veitchii*, may by careful and judicious treatment be had in flower at the present time. Those that have flowered may be turned out of their pots and stored amongst sand or moss in boxes in any warm shed where the temperature will not fall below 50°.

Gardenias.—These will now be showing and producing flowers in quantity—that is, those that have been forwarded in brisk heat. Give weak stimulants in the form of liquid manure every time watering is done; or, better still, sprinkle on the surface of the soil some artificial manure. If fine flowers are required remove the young growths from the base as soon as they are formed. These when large enough make the best of cuttings that can be obtained, and will root quickly in heat under a bellglass, and if an increase in the stock is required the sooner they are rooted the better. Where the stock for spring flowering is grown annually from cuttings a good number should now be rooted. Plants rooted last August, and now bushy specimens in 4-inch pots, may be placed in 6-inch pots. These plants can be grown successfully in either good loam or peat; but a mixture of both is preferred—three parts of the former to one of the latter—with a liberal quantity of sand added and a little bone meal. A little prepared cow manure rubbed through a fine sieve is also beneficial. After potting, if practicable, give bottom heat for a time until the roots are growing again freely.

THE BEE-KEEPER.

THE MILD WEATHER AND BEES.

THIS current winter has been perhaps the most open for many years. Bees have consequently been more or less on the move in all parts of the country; not so much so in our own apiary as with those whose hives stand in warm sunny places. Where bees have been unusually active the mortality must have been very great in winter. Bee-keepers as a rule are not careful enough to shade the entrances to hives, and do all they can to keep the bees in. A flight now and then during the winter is most conducive to health, and in most winters opportunities for this occur after some three or four weeks of captivity. But this season has given by far too many of such opportunities, and the consequence is that during sunny weather bees have taken longer flights than usual, and many have been out never to return. During the winter months birds are much more ready to snap up the wanderers; less food of other sort is available. Tomtits are especially voracious at this time of the year, and we have watched them keeping a good look-out before hives for their prey. Sparrows do not seem to seek for bees as food until nesting time, when a pair of sparrows will, according to a calculation we once made, after carefully watched how often the old birds returned for a bee, take a good-sized swarm during the time they are feeding up a nest of young ones. The sparrow, like the tomtit, carefully but very dexterously first extracts the sting before giving the insect to its young or eating it itself. Thus the mild season which furnishes food for the birds thins the hive. Much food is also consumed where bees get out often when they should be clustering at rest.

Our hives are all in a bee house. During the working season a 9-inch flap hung on butts stands wide open all round the house, and the bees have free entrance to their hives. These flaps are now all closed, and have been so since October. The bees are in partial darkness; their exit to the open air is only now through slits in the flap, and the sun has to be out some time before they feel its influence. Thus they are called out, not by sudden bursts of sunshine, but by a general rise of temperature with sunshine combined. A hive which is so arranged as to indicate on the disc of a Salter's balance the weight of loss or gain tells us that from the 9th of October last until now 9½ lbs. of food have been consumed. This hive is constructed exactly similar to all the other hives we use, and which have been fully described and illustrated in the Journal, only it has double glass slides and front and back. The bees are passing the winter in this hive in a perfectly healthy condition. The bars are covered with quilt and box of chaff, and the glass is perfectly dry and clean, showing that all excessive moisture passes off through the top coverings.

From what we have this winter seen of our bees and their condition we are more and more convinced that a good roomy shed, such as we have made, is a much better situation for stocks during winter than the open. They would be some degrees warmer than in the open should very sharp frost set in, and they are at the same time less influenced by the kind of muggy-warm weather we have been experiencing during the last three months; they will eat less, and there will be less mortality. We do not say that a bee-house is the best place for bees everywhere, but in an open, exposed, windy, and damp locality we would certainly when possible put them under cover.—P. H. P.

A METHOD TO CURE FOUL BROOD.

WE have then to set ourselves this problem: "To find a method at once rapid and economical, by the aid of which the bees may introduce into the nourishment of the larvæ a minute quantity of acid in order to constantly neutralise the germs of the disease, without, however, in any way disturbing the natural order or their daily labours."

The experiences of this year seem conclusive, and make me hope for a complete success in the future. To obtain this result I have kept the water reservoir where my bees go to get their supply charged with water mixed with salicylic acid. I dissolved 50 grammes of salicylic acid in 400 grammes of alcohol, and for each litre of water I added 10 grammes of the above solution. This dose is about double that generally recommended to be used in syrup. The consumption of water has been, on the average, 3 to 4 litres. On certain days in cold weather it seemed to me that the water had a gelatinous appearance, but the bees sucked up the moisture from the cloth covering the tank, and all seemed to go well. This treatment lasted for seven weeks, but in reality the greatest honey flow will prevent the bees going to the reservoir for at least ten days, and they return to it only when the flow of honey slackens.

I had in the spring six colonies more or less affected. Three of these I treated by the first-described method. I left the other three for experiment's sake in the condition they were in.

After seven weeks of this general "water cure" I examined the six

colonies very minutely, every frame of brood being carried into a warm room in the order that they held in the hives.

The other colonies in the apiary were all examined frame by frame, and none appeared attacked, the disease having probably been killed everywhere immediately it showed itself.

Egg-laying in spring is always very regular, because the queen finds plenty of room free of honey; one can then easily follow its progress at this period.

In examining the combs of brood of the three colonies to which I had given no special treatment, I remarked at first a large quantity of brood on the first frame diseased. This comb was the one on which the queen commenced her spring laying. The two other combs, to the right and left of this one, were also sadly diseased; the fourth and fifth commenced to be much less so: in their centres many bees had come out of the cells, but there were still a certain number of cells isolated that were diseased. In the circle of brood (sealed) surrounding the portion empty of brood, I met with very little of the disease, and at last the combs, furthest out from the frame on which the queen commenced her spring laying, did not appear to contain a single diseased cell.

The disease, instead of going on increasing, as is usual, had diminished progressively. I took away all infected combs from these three hives, and commenced feeding them with acidulated syrup. The three other colonies transferred to new hives appeared in good condition. At the moment of writing, my apiary appears cured just by this retrograde action of the disease, and I have every hope that it will continue the same until autumn. I will continue the "water cure" right up to the end of the season, and propose to continue this treatment in the surrounding country until the disease has disappeared from my neighbourhood.—GEORGES DE LAYENS (in *American Bee Journal*).

TRADE CATALOGUES RECEIVED.

Walter Ford, Pamber, Basingstoke.—*Lists of Flower and Vegetable Seeds.*
George White, Carriagehill House, Paisley.—*Catalogue of Florists' Flowers and Herbaceous Plants.*

James Dickson & Sons, 108, Eastgate Street, Chester.—*Catalogue of Flower and Vegetable Seeds.*

W. Lovell & Son, Driffield, Yorkshire.—*List of Strawberry Plants.*

Richard Dean, Ranelagh Road, Ealing.—*Catalogue of New and Choice Florists' Flowers.*

Leveque et Fils, Ivry-sur-Seine.—*List of Roses.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Back Numbers (*S. B.*).—We have received your letter, and the subject has been attended to.

Lycaste Skinneri alba (*J. H. S.*).—The plant you send under this name is *Lycaste lanipes*, which differs greatly from the white variety of *L. Skinneri*, and is much inferior to it both in beauty and value. Small plants of the latter have been sold for twenty guineas quite recently, but half a guinea will purchase a good example of *L. lanipes*. *L. Skinneri alba* has flowers exactly like the ordinary red or pink type, the sepals and petals broad and thick, but pure white. It is easily recognised.

Select *Camellias* (*J. H.*).—The following are free and useful:—*Alba plena*, white, invaluable; *imbricata*, deep crimson; *Queen of Roses*, pink; and *Cup of Beauty*, white and pink. *Comte Brazzi Violet* is white and very full. We do not know a blue one with that name.

Ribbed Glass (*C. B.*).—We have had no experience with the glass of which you have sent a sample, but we do not see why it should not answer for a greenhouse or frame in which plants are to be cultivated. If we had a quantity we should not hesitate trying it, even if a little shading had to be resorted to in very hot weather.

Gardening Appointment (*G. B.*).—There are at present no grounds for your supposition, and we fear you do not read very attentively. See p. 82 of our issue of the 11th ult.

Kidney Beans in Pots (*A. M.*).—In order to be able to gather Beans early in April no time should be lost in sowing seed. You will find Osborn's Forcing a desirable variety, as in addition to being quick-growing and

prolific it is unsurpassed in quality. If a longer-podded variety is preferred Canadian Wonder is suitable. Either 9 or 10-inch pots may be employed, roughly draining these and filling them firmly to within 2 inches of the rims with good soil, composed, if possible, of turfy loam two parts to one of decomposed manure; on this distribute about nine seeds, cover with about an inch of finer soil, water with warm water, and place in a heated pit. When the plants are well advanced thin out where necessary to about six plants, and support these with a circle of birch branches, such as can be had from a half-worn birch broom. Not much water will be required in the earlier stages of growth, though Beans should never be dry at the roots. By the time they are in bloom they will require much water, with liquid manure frequently, and always of the same temperature as the pit. If much crowded, in pits especially, the Beans are liable to damp off, and overcrowding, even if damping-off is prevented, invariably results in a light crop. From twelve to eighteen pots will yield several good dishes, and in most cases two or three small batches sown at fortnightly intervals are preferable to one or two larger sowings. A temperature ranging from 55° to 60° by night to 65° to 70° by day, with an increase by sun heat to 90°, with abundance of moisture to prevent attacks of red spider, will suit them admirably.

Potatoes in Pots (*Idem*).—An excellent cultivator who successfully grows early Potatoes in pots, says:—"Ten-inch pots are the best, a hundred of these will give many dishes of fine early Potatoes, and when properly managed there is no risk with them. A crop may be relied on at all times with no more trouble nor expense than was required with the beds and frames. A quantity of roughish loamy soil should be collected, and a little decayed manure mixed with it. Each pot must have a little rough drainage placed at the bottom, and afterwards be half filled with the prepared soil. This should be made level and firm, and the sets can then be placed on it. Two, three, or four sets may be placed in each, keeping them as far apart as possible, and afterwards covering to the depth of 2 inches or more with the soil. A cool house or frame protected from frost are suitable places for the pots at first, as with a little water the sets will soon produce growth above the soil; and the cooler and nearer the glass the plants are kept at this period the more robust will they remain, and this is a great point gained. Later on they are placed in early vineries or Peach houses, and there the tubers form plentifully and swell quickly. As the weather becomes warmer, about the end of March and beginning of April, they may be placed in frames with the lights over them. Where there is no room to grow many a few dishes may be had from one or two dozen pots, and when they are turned out we feel sure all will be satisfied with this easy and certain mode of securing early Potatoes.

Elaine Chrysanthemum (*W. Day*).—The flowers you have sent are very fresh and pure. They are, we presume, lateral blooms. Well-grown plants after the first flowers are cut break again and produce a second crop not less useful than the first, for if the blooms are smaller they are more numerous. The system of cutting plants in July appears likely to contribute materially to a desirable supply of Chrysanthemums during the early months of the year. Flowers for cutting, such as those before us, cannot fail being acceptable to those who possess them.

Pruning Climbing Roses (*A. D.*).—If the growths are very strong we should not shorten them so severely as you suggest. If they were taken from the wall and temporarily secured in a horizontal position, all, or nearly all, the back buds would break, and the shoots could then be secured vertically about a foot apart, and the wall would be well furnished; but if the shoots are not strong and vigorous they would be better shortened; or if they are closer together than indicated you might shorten the weaker and leave the stronger their full length or nearly so, merely removing the immature ends. In this way your wall would be furnished without lowering a limited number of strong shoots.

Conifers for Screen (*Idem*).—As we understand you to say "hardiness is the great desideratum," we cannot advise you to plant *Pinus insignis*, as a great number of specimens have been killed during severe winters. If you do not object to its dark colour *Pinus austriaca* is one of the most hardy and dense, but *P. Laricio*, the Corsican Pine, is preferable for positions near the sea. The desired height of the screen appears to us an important factor in determining what to plant. For screens or hedges 20 feet high there is no more suitable Conifer than *Thuja gigantea*, often called *Thuja Lobbi* in nurseries. It is close yet feathery, and retains its deep bright green hue during the winter, many others assuming a brown tint, which detracts from their cheerfulness.

Melons in Pots (*A Reader*).—Assuming a temperature of 70° at night, not falling below 65° in the morning, can be maintained in a house, Melons can be successfully grown in large pots without any bottom heat by persons who possess the requisite cultural skill. Obviously it would be of no use plunging the pots in a bed that is several degrees lower than the temperature indicated. Later in the season you will be able to increase the bottom heat, and you are more likely to succeed than by starting so early. You say your space for fermenting materials is limited, but do not mention the depth and width of the bed. It must be very limited indeed if you cannot supply the necessary heat by preparing the bed in April; and if you have very strong plants for planting then you may probably succeed better than by growing and fruiting them in pots. If you have had little or no experience in Melon culture, your safe course is not to commence so early in the season as this. We have grown excellent Melons by planting very strong plants in June without any bottom heat at all by artificial means, beyond applications of warm water, but we should have failed if we had attempted the work in February or March.

Training Melons and Cucumbers (*J. T. S.*).—There is no general length at which Melons are trained. Mr. Taylor allowed them to extend 20 feet or more at Longleat, training them longitudinally along the trellis. The usual practice is to train them across the trellis, allowing the leader to reach within a foot or a little more from the top, then pinching the growths that may follow. The trellis is then covered with fruit-bearing laterals, and only one or two leaves are permitted beyond each swelling fruit. The fruits of Cucumbers will need no extra support, provided the stems close to where the fruits are produced are secured to the wires.

Glazed Flower Pots (*Amateur*).—Your letter is clearly an advertisement, and as such can only be inserted in our advertising columns under the usual

scale of charges. Other firms make them than the one you recommend, and those who desire to extend their trade will no doubt do so in the ordinary manner. The writer of the article on page 101 confined himself to discussing the merits of glazed pots, and very properly did not attempt to obtain a cheap advertisement for any particular manufacturers; had he done so his remarks, if published, would have had little weight with discriminating readers.

Sempervivum tabulaforme (*Trike*).—If you pot the plants in rough turfy loam, with a fourth of dried cow dung and a portion of broken charcoal and a little sand, place them on the shelf of a warm greenhouse, water them judiciously yet sufficiently, they will make rapid progress. In the winter and early spring water must be sparingly given, but in the summer copiously. The plants also do well planted out in rich soil in a warm position in the garden from June to September. Cactuses and Epiphyllums are best raised from cuttings and by grafting. The address you request is Mr. H. M. Boller, Woodfield Nursery, Woodfield Road, Harrow Road, London, N. You will find some notes upon raising seeds of Cacti in another column.

Hard and Soft Putty (*C. L.*).—A little white lead mixed with putty will make it set hard in a few days; but gardeners never allow the use of that old kind of putty in these days, because once it gets dry they can hardly cut it when repairs or alterations are to be made afterwards. We have seen a good glazier break four squares of glass trying to mend one broken one, besides spending an hour and a half at the job, which a mere lad could do in five minutes, and without any breakage, if proper putty had been used in the first instance. Hothouse putty is made with whiting pounded down and sifted very fine, and boiled linseed oil, making it into dough as the bakers do their bread; the more the dough of putty is worked the better it will be, and it should be at least ten days old before it is used; in that time a large lump of it will "sweat"—that is, slightly ferment, which is necessary to give it the proper adhesive power. When this soft putty, as it is called, is allowed to dry thoroughly before it is painted over, it will last as long as the hardest white-lead putty, and at the end of twenty years be soft enough to be cut away with a knife. If, therefore, you wished to remove your greenhouse at any future time, you could easily take out the glass, pack it in boxes, and the timber-work could then be handled and packed without the risk or annoyance of breaking the glass.

Starting Dahlias (*F. J.*).—As you do not desire to increase the number of plants, but only wish to have them stronger, you had better let the roots remain dormant till the first week in April, then start them in pots in a very light greenhouse. As soon as growth is apparent the plants should be placed on a shelf close to the glass. They will then be very stout and short-jointed. You may either divide the roots or thin out the stems, selecting the best for forming the plants. They can be removed from the greenhouse to a frame early in May, and if well supplied with water will be in fine condition for planting after all danger of frost is over, and if placed in deep rich soil and copiously watered in dry weather, will attain to a great size during the season. If you start the plants anything like so early as your letter implies the growth will inevitably be weak and the plants unsatisfactory. It is only skilled propagators with suitable glass structures who are able to succeed in growing strong Dahlias by starting the roots in February and March.

Starting Tuberous Begonias for Bedding (*Idem*).—We fear you do not read the Journal so attentively as you ought, as we observe you often ask questions on a subject that has only recently been exhaustively treated. We cite from an article on this subject that appeared not long ago, and which is a complete answer to your question. A few of the secrets of success in preparing the plants and growing them successfully in beds—that is, if there are any "secrets" now-a-days, may perhaps be usefully divulged. These are the very essence of simplicity. Where persons fail is in over-preparing, over-nursing, or, to use a well-understood and expressive term, in coddling the plants in their early stages, then starving them afterwards. If we look at the plants and note their fleshy roots, succulent stems, expansive leaves, and large leathery flowers, it becomes apparent that they must have rich, free, generous soil, and abundance of water—that is, when they are in full growth. It is also clear that all plants of this nature from Balsams to Begonias are peculiarly liable to be drawn by excessive heat and insufficient light in their early stages. If anyone wants to see how stout and sturdy Balsams can be grown let him sow some seed in pots in May, and plunge these pots in a heap of fermenting materials in the open air. If he wants stout Begonias for bedding let him start the plants on similar principles of affording them gentle bottom heat, but not starting them so soon that they cannot have abundance of light and air to keep them dwarf and sturdy. The precise time of starting can only be determined by means of growing the plants afterwards, but, as a rule, early in April would be safe for the majority of cultivators. When once started the plants must be kept steadily growing. There must be no check, and as a rule they are far better if they are never potted. If Begonias are potted, as they often are, grown nearly a foot high under glass, then placed in a frame to "harden," their pots at the same time crowded firmly with roots, and eventually planted out, they will not flourish. Their owners wonder why they do not start and grow freely, concluding the plants are "not fit for bedding." It would be a wonder if plants thus "prepared" did thrive. Even Calceolarias will not do so, as most persons have found out, and they adopt a simpler and more rational mode of preparation. In order to succeed with Begonias we must go back to simplicities. Start the tubers in boxes, then if the plants when an inch or two high can be planted 4 or 5 inches apart in good soil on a gentle hotbed in a pit, or over which a frame can be placed, there to remain till planted in the beds, there can be no better preparation. Failing this they may be grown thinly in boxes, the compost being light and gritty, resting on a layer of decayed manure. Of this the roots will take possession, and in due time the plants can be quickly yet carefully planted in the beds with roots uninjured, stout, healthy, hungry, and ready to immediately extend into the soil in which they are placed. A root-bound plant cannot do this. It tries to do so, and a few fibres start from the wire-like roots here and there that are curled round the soil, but the growth is never free, and the plant struggles for existence. It may not die all at once, but it cannot make free progress, and then "Begonias are no use for bedding." Better would it be to plant the corms in the beds on the 1st of May and leave them to take their chance, than to prepare them in this root-bound irrational fashion that more than

anything else has brought Begonias into disrepute as plants for the flower garden.

Names of Fruit (*Merse of Berwickshire*).—1, Golden Winter Pearmain, commonly called King of the Pippins; 2, Grey Leadington (?); 3, Downton Nonpareil. (*Colonel Gleig*).—1, Golden Pearmain; 2, Golden Reinette; 3, Eldon Pippin; 4, Golden Noble. (*F. J.*).—Reinette de Canada. (*F. G.*).—The Pear is not known.

Names of Plants.—Several correspondents have sent us Camellia flowers for naming. These being varieties and not species we do not, as we have many times stated, undertake to name them. There are so many forms so closely resembling each other that they cannot be satisfactorily identified except by comparison with others in a large collection. The same rule applies to all varieties of florists' flowers. We do not refuse to give the name of a Camellia that we can determine with accuracy; but in a case of doubt it would be inadvisable to give a name that might not be correct. (*E. P.*).—*Clematis indivisa lobata*.

Feeding Bees (*Old Subscriber*).—Your bees are probably starving. Give them syrup in shallow vessels, which you can easily place under the hive.

COVENT GARDEN MARKET.—FEBRUARY 13TH.

TRADE continues quiet, Grapes scarcely maintaining their value. Cucumbers lower. Kent Cobs stagnant.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples	½ sieve	1 6	to 5 0	Nectarines	dozen	0 0	to 0 0
"	per barrel	0 0	0 0	Oranges .. ..	.. 100	6 0	10 0
Apricots	box	0 0	0 0	Peaches	dozen	0 0	0 0
Chestnuts	bushel	10 0	0 0	Pears, kitchen ..	dozen	1 0	1 6
Figs	dozen	0 0	0 0	" dessert	dozen	1 0	5 0
Filberts .. ..	.. lb.	0 0	0 0	Pine Apples English ..	.. lb.	2 0	3 0
Cobs	per lb.	1 3	1 4	Plums and Damsons ..	..	0 0	0 0
Grapes .. ..	.. lb.	1 6	5 0	Strawberries .. ..	.. lb.	0 0	0 0
Lemon .. ..	.. case	15 0	21 0	St. Michael Pines ..	each	2 0	8 0

VEGETABLES.

		s. d.	s. d.			s. d.	d. s.
Artichokes	dozen	2 0	to 4 0	Mushrooms	punnet	1 0	to 1 6
Beans, Kidney ..	100	1 0	0 0	Mustard and Cress ..	punnet	0 2	0 0
Beet, Red	dozen	1 0	2 0	Onions	bushel	2 6	3 3
Broccoli	bundle	0 9	1 0	Parsley	dozen bunches	3 0	4 0
Brussels Sprouts ..	½ sieve	1 6	2 6	Parsnips	dozen	1 0	2 0
Cabbage	dozen	0 6	1 0	Potatoes	cwt.	4 0	5 0
Capicums	100	1 6	2 0	" Kidney	cwt.	4 0	5 0
Carrots	bunch	0 3	0 4	Rhubarb	bundle	0 4	0 0
Cauliflowers	dozen	2 0	3 0	Salsafy	bundle	1 0	0 0
Celery	bundle	1 6	2 0	Scorzonera	bundle	1 6	0 0
Coleworts doz. bunches		2 0	4 0	Seakale	basket	1 0	1 0
Cucumbers	each	1 0	1 6	Shallots .. ..	.. lb.	0 3	0 0
Endive	dozen	1 0	2 0	Spinach	bushel	2 6	3 6
Herbs	bunch	0 2	0 0	Tomatoes .. ..	.. lb.	0 3	0 10
Leeks	bunch	0 3	0 4	Turnips	bunch	0 3	0 0
Lettuce	dozen	1 0	1 6				



GRASS SEEDS FOR PERMANENT PASTURE.

THE subject of "Laying down Land to Permanent Pasture" was discussed in this Journal on the 5th, 12th, and 19th of February, 1880. Since that time, however, a great revolution has occurred, or a great necessity for changing our opinions upon the subject of seeds to be used for the purposes. Much care has been bestowed upon the subject, which has been considered in a thoroughly practical light by an excellent authority, who has given us the full benefit of his experience—we allude to Mr. C. De Laune Faunce-De Laune, whose essay appears in the Journal of the Royal Agricultural Society of England for 1882 "On Laying down Land to Permanent Grass," and which will be of immense importance to the owners and occupiers of land, and more particularly at this period of depression in agriculture, when the statistics show that a large increase of land laid into pasture has taken place during several years past. No doubt in the future obtaining seeds for the purpose will be more simple, better defined, and at some considerable less cost than in the past. It is notorious that a great want of knowledge has existed upon the subject, which has been shown not only by the farmers, but also in some cases by the seedsmen, as regards the habit of growth and feeding properties of grasses produced by seeds commonly used for the seeding of land for permanent grass, in consequence of which a large number of seeds of sorts ill adapted for the purpose have been included in the mixtures. Still we cannot but admire the interest taken in the subject by those firms and seedsmen who have taken great pains in directing the farmers as to the value of the seeds which, in their estimation, both as to sorts and quantities, were best adapted for use on the different soils and climates of the various

counties and districts of England, Ireland, and Scotland. Much trade has been done in selling grass for use in our colonies, as well as the continental States; and no doubt as the cultivation of land in America, Canada, &c., extends, that a great future for the seedsmen will open abroad for them; but more particularly shall we expect this after the full experience of those who have studied the matter of selection of seeds has been more fully developed and admitted as correct in practice.

In the essay above named the author says—"Although I have, during the last nine years, bestowed much attention on the formation of permanent pastures, I should have hesitated to undertake the task of attempting to enlighten others, had I not been assured by many very competent advisers that a promulgation of the results of my experiments would be greatly for the public advantage; the more so, as on many essential points my views differ materially from those of most writers on the same subject. In the limited space of this article I intend to confine myself to that which I deem the most important—viz, the kinds of seed suitable to be laid down. Unfortunately for owners and occupiers of land the grossest ignorance prevails about grasses. To many landowners and farmers almost every herb that is green is considered to be grass; hence the ordinary circumspection used in purchasing grain-crop seeds has not been exercised in the case of grass seeds. It is generally, I might almost say invariably, alleged, and truly so, that newly formed pastures have been found to deteriorate greatly after the first two or three years. I will explain my view of the reason of this determination and point out the remedy, and in so doing correct what I conceive to be some erroneous impressions that are generally entertained respecting grasses. The terms 'coarser grasses,' and 'finer grasses,' which are so frequently used, have led to serious mischief in the formation of new pastures. The coarser are popularly believed to be the inferior, and the finer grasses the better sort, but in reality the four best grasses for pasture are all large grasses, and come, popularly speaking, under the head of coarse grasses. There are perennial, biennial, and annual grasses. The two latter ought, in my opinion, under all circumstances, to be carefully excluded when a permanent pasture is desired. The use of short-lived grasses and of biennial Clovers, coupled with an insufficiency of proper seed, is the main cause of deterioration of new pastures after the first two or three years.

"The four coarse grasses valuable beyond all others for permanent pasture are Cocksfoot (*Dactylis glomerata*), Meadow Fescue (*Festuca pratensis*), and its ally, Tall Fescue (*Festuca elatior*), Catstail or Timothy (*Phleum pratense*), and Meadow Foxtail (*Alopecurus pratensis*). These five grasses should form the bulk of all pastures on good soil, either for sheep or cattle. The finer or minor grasses are Crested Dogtail (*Cynosurus cristatus*), Hard Fescue (*Festuca duriuscula*), Rough Meadow Grass (*Poa trivialis*), Fiorin (*Agrostis stolcnifera*), Sheep's Fescue (*Festuca ovina*), and Golden Oat Grass (*Avena flavescens*). A meadow composed of the above would be perfect as regards grasses, assuming that the proper proportions are used; it would produce food for stock during nearly every month of the year. The Clovers which should, however, be used in a much smaller proportion than the grasses are permanent Red Clover, Cow Grass, Alsike, and White or Dutch Clover. Seeds of Milfoil or Yarrow (*Achillea millefolium*), ought never to be omitted. The above are really all the plants required for a permanent pasture of the finest quality on first-rate or medium soils throughout Britain. On inferior soils or soils possessing special qualities some of these grasses would not be suitable, and a selection must be made. Thus, on dry lands, Foxtail, Rough Meadow Grass, and Fiorin should be omitted, and a smaller quantity of Meadow Fescue used, while a greater proportion of Cocksfoot, Crested Dogtail, and Yarrow should be substituted."

This lengthened quotation has been given because it exactly describes the new movement or changes required in the seeding of land for permanent grass. When compared with the mixtures heretofore recommended by most writers on the subject, and the major portion of the seedsmen who furnish ready mixed grass seeds for the purpose, and which have previously been accepted by the farmers, who in general through not studying the matter for themselves and their interests, have trusted to seedsmen to prepare mixtures for them. We were somewhat in the same position as most farmers, for during eight or ten years we had trusted to firms to supply grasses of our choosing, but we are still in the dark whilst making our own selections; for although we objected to inferior sorts of grasses, yet we were induced to use seeds such as Italian Rye Grass, Perennial Rye Grass, and other varieties of Rye Grass. Now, however, we can see the mistake that was made. Rye Grasses make a great show, and although cheap were the principal cause of all the subsequent failures of the plant so common in the previous system of seeding.

About four or five years ago we recommended a friend to sow a mixture of Rye Grasses with the best permanent grasses, but when we viewed the land a few months ago our friend complained that all the grasses, except Cocksfoot and some Dutch Clover, had entirely dis-

appeared, and in that state we found it, for the Coeksfoot Grass left was not thick enough to furnish a good turf, although some Dutch Clover still remained ; yet the food for dairy cows had been abundant throughout the year. Immediately we saw the field we felt how correct the experiments and recommendation of Mr. Faunee De Laune had been, and that they were sound and safe to be acted upon, because all other grasses which had been sown had failed in contributing to permanency of the pasture, although they had yielded a fair produce for the first two years. The mistake has occurred in this way, for the farmers were informed that the varieties of Rye Grass were necessary to furnish the bulk of the produce for the first two or three years, during which time the permanent varieties would be gaining strength, and eventually outgrow everything else, and form a thick pasture of the best kind. But we can now see how, with others, we have been misled ; for although some sorts of grasses were much cheaper per pound than the best varieties of permanent grasses, yet it is clear that farmers almost to a man were, until Mr. Faunee De Laune opened their eyes upon the subject, completely deceived. The seedsmen supplied such seeds as the farmers were satisfied with, and thus the fallacy became popular without disadvantage to the seedsmen until recent events occurred.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This will continue so as long as the weather is so stormy and changeable, but we have never known a finer time for sowing late Wheat than has prevailed since Christmas, for although the weather until the last week in January was mild and foggy without much rain, it was very suitable for Wheat-sowing in all cases where the land was ploughed and sown simultaneously. When the seed can be properly buried or covered by the action of the harrows the land cannot be considered too heavy ; for in the succeeding months, if the weather proves either frosty or ever so dry, the Wheat plant will always do well when the soil is heavy and close without being drenched by heavy rains at the seed time. Spring Beans, too, may have, and no doubt have been drilled on some soils during the month of January. Even now while we write (Feb. 4th) we notice fields of London clay, and the land ploughed in small ridges for Wheat, such as the late Mr. Mechi used to call it, "dressed in corduroy." Although we have had heavy rains, yet the intervals of strong drying winds have prevented water showing in the land furrows where finished-off in a husband-like manner, and in nearly every instance the Wheat plant is regular, whether sown in October, November, or December ; in fact, much that was sown in October, it is said, looks too strong, but to our mind that will only be proved by the spring and the summer, for if we have an early harvest the Wheat will do well and go on without any serious check. Chalk-carting will still be going on, also carting manure from the towns where farms are near. We know in some cases where the moss litter is used for cab, omnibus, or tramcar horses, the manure is removed by contract, the farmers giving so much per ton or load. Now this manure is very valuable, for the moss-litter manure is composed of humus saturated with urine and mixed with the excrement, making combined a first-class manure for light soils, either as arable or pasture. How many farmers having peat on their farms may go and do likewise ! But do they ? It is too true that they do not provide peat in a dried state for this, although they may do it so easily in many cases with great advantage, it is lost sight of. This is especially important in pasture districts where straw is always scarce, but peat is more or less available as a substitute. Carting earth to store heap, also taking off earth at the sides of local or farm roads, may now be done, and such earth is very valuable for the making of compost, seeing that its accumulation has been drift from the roads. If we should obtain frost enough to bear the horses and carts without tracking, the various compost manures may be laid out on pasture or park lands without injury.

Hand Labour.—In the enclosed woodland districts men will now be employed in cutting and converting underwood into bundles for various purposes, such as hoops, hop poles, and sparwood. In fact, planting is worth the attention of the home farmer, for we find in various instances much poor land has fallen into hand upon some estates, which although cultivated when rents were high and prices of produce fair and reasonable, is now in these times of agricultural depression such land pays best and proves most beneficial when planted with Larch Fir as thick as Cabbages, where they can be sold well as hop poles at the age of about twelve years. If no demand exists for hop poles, ordinary underwood of the best varieties may be planted for conversion as above named. If not, some soils unproductive in their waste, although not of sufficient value for corn-production, may be laid into grass in accordance with the plans and system of seeding which our columns for several weeks to come will bring into prominent notice for the benefit of the home farmer and others whom it may concern. The weather when open and mild, as it has been for some time past, will not interrupt the forking-out of couch grass upon all dry and friable soils where the roots are now growing, such as Swedish Turnips, Kale, &c., and which crops ought, as well as land intended for Potatoes, be looked over, the former before feeding with sheep, the latter before ploughing and planting.

Live Stock.—Fattening sheep will now require a liberal allowance of dry food to counteract the effect of the roots, which, owing to the mildness of the season, have not only lost a portion of their feeding value by

early sprouting, but contain also an unusual proportion of moisture ; in fact, it is a question what food should be used for the purpose of correcting the state of the root crops. We do not approve of cake for that purpose, but rather the use of Beans, Barley, or damp and inferior Wheat crushed and in admixture, not only for the purpose of checking any ill effects from undue moisture, &c., but also because, if we use the produce of the farm, which is now selling so low in price, it may contribute to the advantage of the farmer in two ways. First, beneficial action in fattening his sheep, and also by withdrawing a considerable portion of the grain supplies from oversupplied grain markets. For young store cattle and dairy cows the open weather has been extremely favourable, as they have been wintered in the pasture districts with more economy than usual. In various provincial towns lying in pasture districts it is matter for remark that sound and sweet fresh butter is not to be obtained in quantity proportionate to the demand. Let the dairy farmers, but particularly those who have little or no arable land attached to their farms, make arrangements so as to have one-half or one-third of their cows to calve in the month of October and November, and feed them during the winter upon ensilage, the produce of their own pastures, instead of hay. In this way the supply of butter may be made equal to the demand, at a high price sufficient to make it beneficial to change the old system.

OUR LETTER BOX.

Channel Island Cattle (V. C.).—These are never too old for milk-selling and butter-making if they will bring a calf every year, and continue in good health. They are never too old if they are good and large milkers, nor is it any use to attempt to say how long they should be kept, especially if for pets in suburban districts, because when they are aged they cannot be fattened to any profit, but whilst they yield a full quantity of milk retain them by all means. They will sometimes milk profitably until fifteen years old or more. A mild climate suits them best, but we never knew one die from old age if free from disease.

Alderney Cow (T. S.).—We do not think it advisable to keep a heifer which is a hard milker. It will be best to sell her for what she will fetch at the time she springs and shows for calving.

Management of Cows (C.).—To keep cows in health up to the time of calving they should have proper exercise and not be allowed to go dry, but be milked until they spring for calving again. They will then continue healthy, and not lay on internal fat, which is the cause of nearly all the disorders to which they are subject at the time of calving, and it applies with greater force to Shorthorns and the Suffolk Polls. Channel Island cows are not so liable to the drop or puerperal fever at calving time. It is better for cows to live on grass only or ensilage for two months before calving ; but in case of being fed with roots and hay, a very moderate allowance is necessary, certainly not so much as they can eat, but with access to water at all times. At the time of calving the cows should be milked quite dry twice a day. After the calf is born the cow should have a warm bran mash ; it is, however, an open question, for some successful dairymen never give anything but water, or cold bran mash after calving. Cows should be kept very short of food several days before calving, and always have access to rock salt. With regard to the rearing of the calf, if it is for stock it should have a drink of new milk, if it is not allowed to suck the cow. Sometimes they are weaned at birth ; they are, however, generally allowed to clear out the udder after the principal part of the milk has been drawn away for a week or ten days. Afterwards they are weaned and allowed new milk for a month, and then skim milk with a little cake or bean meal mixed until they begin to eat. They may then run out into a dry paddock at daytime, but still get a little milk and meal twice a day until they obtain grass enough to keep them in condition, but they should go into pens for warmth during the night. If calves are reared for veal they may suck the cow, and have beanmeal balls given when they require it. If the calves are required to be fed on for fat animals or for show purposes, they will suck the cow for five or six months, and then be fed separately upon the best of everything—good roots, hay, cake, and meal.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1884. February.		Barometer at Sea and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday	3	30.489	31.1	39.0	S.E.	41.9	42.0	28.2	50.2	25.0	—
Monday	4	30.437	44.0	42.3	W.	41.1	50.3	31.8	65.9	30.0	—
Tuesday	5	30.441	44.6	43.5	S.W.	42.4	48.8	43.2	53.3	39.5	—
Wednesday ..	6	30.297	43.4	41.0	S.W.	42.9	47.3	49.6	52.3	36.7	—
Thursday	7	30.151	37.1	36.6	N.E.	42.1	44.3	35.0	48.3	30.6	—
Friday	8	29.930	59.0	58.1	N.	41.4	45.3	36.4	45.4	31.9	0.011
Saturday	9	29.592	48.2	46.7	S.	42.0	51.9	38.4	57.0	38.8	0.122
		30.200	41.1	39.7		42.0	47.1	34.2	63.2	33.2	0.142

REMARKS.

3rd.—White frost early, then fine, but cloudy in afternoon.

4th.—Fine, but not very bright.

5th.—Dull and overcast.

6th.—Dull morning ; fine afternoon ; moonlight evening.

7th.—Dull, but fine and bright in afternoon.

8th.—Cloudy all day, with fog from 11 till 3 ; sprinkle of rain in evening.

9th.—Overcast nearly all day, with occasional rain and some wind.

Rather cooler than the previous few weeks, but still above the average.—G. J. SYMONS.



21	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
22	F	Quekett Club at 8 P.M.
23	S	Royal Botanic Society at 3.45 P.M.
24	SUN	QUINQUAGESIMA.
25	M	
26	TU	
27	W	Society of Arts at 8 P.M.

FORCING VINES IN POTS AND PLANTED OUT.

IN producing Grapes as early in the season as possible the majority of persons are anxious to spare permanent Vines such a strain upon their energies as they undergo in forcing, and for this purpose Vines grown and prepared in 10-inch pots are forced for yielding early Grapes. Never, I think, in the whole history of horticulture were so many employed for this purpose as at the present time. Certainly some consider that the produce from such Vines is not of much account, and only useful to maintain a continuous supply. It is scarcely to be expected that the fruit should be quite equal to that from those started two, or even one month later in the season, yet some wonderfully good fruit can be produced from Vines in pots. Up to the present time, however, I have failed to obtain from Vines confined in the pots in which they were grown fruit equal in size of berry and quality to that from others that have been transferred into pots 2 or 4 inches larger. The latter is preferable, and I am more convinced than ever that the little extra labour occasioned by the potting is more than repaid by the better quality of the fruit. Only last year I had the pleasure of seeing a house of Vines in pots grown on the principle I described in these pages a few years ago, which for finish, size of berry and bunch were superior to any I had before seen. If the fruit had been the produce of permanent Vines it could not have been expected better; in fact, a house full of such fruit early in the season would have been regarded as a grand success.

It is not my intention to detail the system again, and only allude to it because the time of year has arrived when it can be carried into operation. Those who attempt the re-potting must be careful how the watering is performed until the roots are growing freely and have taken full possession of the new soil. If the old ball is allowed to become dust dry only poor progress afterwards need be anticipated; indeed experience proves that growing Vines annually and fruiting them in the pots in which they are grown is by no means the easiest or most economical system. Transferring the Vines when the roots commence action into larger pots is preferable, but even this is not so good as planting out the Vines. Some may urge that good Vines can be purchased at moderate prices, and that the supply of fruit will than compensate for the first outlay. This I do not deny, and have followed the practice myself when for the want of room I have been prevented growing those raised at home.

The best supply of early Grapes can be obtained by planting out well-grown Vines in a small house in narrow borders purposely prepared, not to be destroyed after one crop, but to be retained for a number of years. Those who have Vines in pots now commencing growth and showing their bunches have them in the most suitable condition for this purpose. The borders need not be more than 18 inches wide, and the same, or even less, in depth. Suppose the

house in which they are to be planted is a span-roofed structure, with a bed 3 feet wide on each side and the walk down the centre. If the borders are half the width of the beds, and the depth is in accordance with the width, it will be ample for the Vines for at least four years. The borders may be composed of good loam, a little wood ashes, quarter and half-inch bones, and a little fresh lime sprinkled amongst the soil as the border is being made. If the loam is heavy, charcoal, broken bricks, or even coarse sand may with advantage be used; if, on the other hand, it is light, reduce clay to powder by drying and add it to the soil. The borders should be well drained, so that the soil employed cannot become saturated and sour about the roots.

In such a structure the Vines should be planted on each side about 2 feet apart, allowing every alternate Vine to extend to the eaves of the house on the opposite side. This arrangement will leave the Vines on each side after the first crop has been gathered 4 feet apart, while the rods when they have extended their full length will be 2 feet from each other. Before planting, be careful that the soil of the borders has become sufficiently warm, so that the roots will not be checked. The old balls of soil and roots must be in a moist condition before they are placed in the border, and it will be wise to make three or four holes through the ball before planting to insure water entering afterwards. If they are once allowed to become dry it is difficult to get them thoroughly soaked after, and much injury, or even the loss of the crop, may be the result. The soil of the border should be pressed firmly round the roots in planting, and when finished the surface should gradually slope inward to the stem, and be allowed to remain in this condition until the roots are growing freely in the surrounding soil.

It not unfrequently happens that in forcing a number of Vines in pots, however well they may have been grown, a certain per-centage may fail to show fruit satisfactorily. These should not be thrown away, unless the cultivator has sufficient for planting without them, but accorded positions where they can extend for fruiting the second year. It will be understood that the first crop is to be taken from every alternate Vine, and after it has been gathered the rods can be cut out to give the others every chance of properly developing and maturing their wood. It is not necessary to remove the whole of the fruit from those intended to bear the second year, unless the temporary Vines are capable of carrying an ample supply. I have taken six bunches from the Vines the first season they were planted, on an average 10 lbs. of fruit, and they have done well the following season, but it is unwise to crop them so heavily.

After the Vines are planted, if they have not broken strongly at the base—and they seldom do so early in the season—peg down upon the border the rods intended for the second year—that is, the bare portion; the remainder may be taken upright and tied to the wires. By this means the canes will throw out abundance of fresh roots, which will not only add to their strength and vigour the first season, but be a great help to them in the second. A small house was planted with Vines after fruiting one year in 14-inch pots early in the year 1882; these were pegged down early last year, and have made abundance of roots, in fact sufficient to be independent of their former feeders. They have carried three good crops of fruit, one in large pots, two since they were planted out, are again this year showing fruit well, and have increased much in strength since they were pegged down.

I am convinced that Vines planted out in the manner detailed and liberally treated will give a greater yield of superior produce than it is possible to grow under the system generally practised at the present time. From the appearance of the Vines upon which my experience is founded I believe they will bear creditable crops of fruit for at least half a dozen years. Overcropping must not be tolerated. I am no advocate for fourteen or fifteen bunches of inferior fruit, and consider six well-finished bunches ample; in fact,

it is a heavy crop when they swell to an average 10 lbs. of fruit.

If the Vines are strong at the end of the fourth year the remaining portion of the border should be made. If any show signs of weakness give them a year's freedom from the strain of fruit-bearing and encourage a young cane from near the base. When planted thickly as advised, after they have fruited for a number of years a young cane may be encouraged from the base of every alternate Vine, removing the lower spurs to give it light. After it has been grown one year remove the old Vine, and then allow the young cane to grow the following year without bearing fruit, so as to become thoroughly recruited. By this means the life of the plants is renewed, and in consequence extra vigour and fruitfulness is the result.—WM. BARDNEY.

NOTES FROM THE NORTH.

— *CYPRIPEDIUM SPICERIANUM*.—Probably the flowers of this lovely Lady's Slipper last longer in perfection than those of any other. There is a plant in bloom here that expanded its flowers the first week of November, and there is as yet (February 16th) not the slightest indications of its fading. The house in which it stands has been kept at 60° at night, with an amount of moisture sufficient for *Vandas* and similar Orchids. The stock of plants from which the blooms were cut as they opened were removed a month since into a house where, from great command of pipes, the night temperature is easily kept at 70° with a very moist atmosphere, and the effect has been magical in the expansion of leafage and deepening of their green. Evidently it is a plant that grows most vigorously in a high temperature and saturated air.

VANDA SANDERIANA.—Two plants of this grand *Vanda* stood in our *Vanda* house all winter without showing signs of making fresh roots. It, too, was placed in the warmer and moister house along with *C. Spicerianum*, and it commenced to make roots almost directly. From the appearance of this *Vanda* I suspect it requires more heat than the tricolors or *suavis*. A writer has recently said that it resembles *V. cærulea* in its growth, but I fail to see anything like a resemblance in two plants of it here to some eight or nine plants of *V. cærulea* growing in the *Cattleya* house; but perhaps there may be varieties of it, like all other *Vandas*.

CALANTHE VEITCHII.—It is affirmed by some that there is only one variety of *Calanthe Veitchii*, and that the variety of colour is merely the effect of exposure to different degrees of light. I, however, have grown the two varieties year after year side by side under precisely the same conditions, and have always found them quite fixed in their shades of colour as well as in the shape of their bulbs, and maintain that the one with the contracted middle part of the bulb is not worth growing as compared to the other.

DENDROBIUM HILLII.—This distinct *Dendrobe* is well worthy of more attention than it receives, and few Orchids are more ornamental when well flowered. I have to-day (February 16th) cut two spikes of it from one growth or stem, the flowering portions of which without the stalks measured 20 inches long. The same plant has several other spikes on it. It is considered a shy flowerer, but if grown in a cool airy house, and after it has made its growths it be kept dry for three or four months, it flowers freely enough. Our plant has not been shifted for eight or ten years, and the pot seems to be full of roots and nothing else.

MATERIAL FOR POTTING ORCHIDS.—Having passed a very considerable number of Orchids through my hands in the operation of potting during the last two months, I have noticed two things in particular—namely, that where epiphytes are found growing in sphagnum and crocks with next to no peat inter-mixed, the roots and growths were always in better condition than where the latter ingredient was more abundantly used. It would be difficult to understand how peat can get up a tree, though that does not by any means prove that an Orchid in the cleft of a tree does not get manured, but it must be directly from the surface. And it was also found that where such plants as *Odontoglossums* and *Cattleyas* have had a larger surface, but very little depth of material to grow in, they were in much better order than where the surface was less and the depth greater, an inference which might also be drawn from the condition of such plants growing on trees. By the way, a celebrated writer not very long since declared he saw lumps of

loam sticking to newly imported masses of *Odontoglossum Alexandræ*. It would be interesting to know how the loam got up the trees. In potting *Cattleyas* it was also found that where the crocks were placed edgeways the roots had a far more vigorous hold of them than when put into the pots less regardless of their position. In clearing the old material from the roots a most effectual way is, after removing it all from the surface, to give the pot a few sudden plunges in a barrel of tepid water. This forces every particle of decayed material out at the surface and at the holes in bottom of pots, which operation is also most effectually carried out when the drainage is all carefully arranged edgeways, and where a plant has been found with its roots so welded to the inside of the pot that in many cases they must be very much injured if an attempt were made to liberate them even by breaking the pots, they have been placed entire inside a larger pot when a shift into a larger was considered desirable. In this way the roots are not injured, and fresh-made ones find their way from the top into the larger pots.

MILDNESS OF THE WEATHER.—This may be judged of when it is said that on Friday, February 2nd, all our large-foliage plants were taken out of the stoves into the yard and thoroughly drenched with petroleum and water to make sure that no insects were left on them as a preparatory operation to their being shifted into larger pots when that was necessary. Speaking of petroleum, it is the cheapest and most effectual of the many insecticides of which we have had experience, and the destruction of mealy bug was despaired of till we employed petroleum. The enemy was so general that it was found in legions on the under sides of the iron gratings that form the paths of the houses; but paraffin soon solved the problem, and I do not believe there is a bug in the place, nor has there been a plant injured by the oil.—D. THOMSON, *Drumlanrig*.

SPRING TREATMENT OF STRAWBERRY PLANTATIONS.

THE best of all ways of growing Strawberries is in rows, which may be from 1 foot to 2 feet apart, according to the variety. Some who only try to secure large fruits grow the plants singly, 3 feet apart every way, but in my opinion this is not the most profitable method. The best and most fruitful Strawberry plantation I have had was one where the rows were 3 feet apart—that is, from centre to centre of the rows, but each row was in reality 18 inches wide, and a bare space of the same extent was left between them. The plants in these strips were grown in a mass together, and as they have been in existence for ten years they have, through adding top-dressings, become higher than the ground between, and this is a great advantage both in keeping the blooms and fruits clean, and the crowns are well exposed to the action of the sun and atmosphere, which is an important point.

Some growers, whose whole attention to their Strawberry plantation consists in gathering the fruit, allow what may at one time have been rows to become a mass of runners, and every inch of the surface of the soil is covered, but when this happens the plants will soon degenerate and fail to produce fruit of any reasonable size or in profitable quantity. It is this system of neglect I wish to speak against, and now is the time to remedy such evils. The first fine day should be taken advantage of to line off the original rows. Remove all superfluous plants, and leave the ground between the rows perfectly clean. In digging up the plants the whole of the soil need not be upset, but cutting them off like turf is the best way of clearing them, and to dispose of them finally they should be burned. All weeds should be taken up, and a sprinkling of short manure then placed amongst the plants. At the same time a good coating of manure should be applied to the cleansed ground, and this should be forked-in. As soon as the plants commence growing they will at once reap the benefit of this treatment, and by the time the fruits are swelling the cultivator will be well repaid for his labour.

I always have all superfluous runners cleared from our plantations in the autumn, but some may not have the opportunity then, only the operation should not be delayed after this time, and the sooner the manure is applied the better. Putting straw or dried grass around the plants at fruiting time to keep the fruit clean is very well, but this will neither increase the size nor number of the fruits. To do this manure is required liberally in poor soils, and that the plants may benefit fully by this they should have it to feed on from the time growth begins. Where the roots are plentiful near the surface it is not right to disturb and break them, and only a top-dressing should be given, but in the centres of the vacant spaces between the rows a good quantity may be forked into the soil, as the roots will find their way to it before long. Plantations which have only been

formed in good soil last year, or not long ago, should not require any feeding yet, but all plants of over two or three years old are benefited by a rich top-dressing in spring.—A KITCHEN GARDENER.

GLAZED FLOWER POTS.

TWENTY years back I grew Pelargoniums, Primulas, Cinerarias, &c., with very great success in glazed pans. The Pelargoniums took first prizes wherever exhibited, and the late Mr. Fleming used to make great comment upon them. I have at the present time in glazed pans (ornamental) from Matthews, Royal Pottery, Lycopods and Ferns that have been twelve months in them quite fresh, and used for room-decoration without any renewing.—BLACK PRINCE.

AFTER reading Mr. D. Thomson's interesting article on the above subject (page 101) it struck me that as many plant-growers are not in a position to get glazed pots, a coat or two of paint on the ordinary flower pot would answer the same purpose, and the cost would be but trifling, as the painting could be done in almost the same time that it takes to scrub a dirty pot. We paint tubs in which we grow plants, and no bad results follow. One of the finest specimen Heaths I ever saw was grown for many years by the late Mr. Dickson at Ferguslie House, Paisley, in a painted wooden tub; so that I think there need be no fear of plants not thriving in painted earthenware pots.—H. HENDERSON, *The Gardens, Woodbridge Park, Guildford.*

VEGETABLES FOR WINTER SALADS.

THE culture of vegetables for salad purposes is by no means one of the least important of the duties devolving upon the gardener. Most cultivators are required to furnish a supply of salading during autumn, winter, and early spring; in some instances a constant supply in quantity and variety. Simple as this task may appear to those who have not hitherto been called upon to do so, it is not an easy one, requiring as it does the exercise of considerable skill and forethought in accomplishing the object. A good salad ranks next in order to dessert, and in many establishments the former is required to consist of vegetables of first-rate quality.

Having to maintain a daily supply for my employer's table I will give your readers the benefit of my experience. First let us see what vegetables are required, and as seed lists are now to hand we should procure seeds of the following—Corn Salad (Italian) or Lamb's Lettuce; Purslane, green and golden; Chicory (Witloof); Dandelion; Lettuce, All the Year Round, Hardy Hammersmith, and Brown Cos; Endive, Moss Curled and Improved Batavian; Radishes, Turnip and Long-rooted; Mustard, white; Cress, common and American, and I need scarcely add Celery and Beet. I will now proceed to describe their several methods of culture and after management.

CORN SALAD (ITALIAN) OR LAMB'S LETTUCE.—Seeds of this should be sown about the end of July on a border for affording produce in September, and continued at intervals, according to the demand for it, until the end of October. Keep the soil moist, or the seed will not germinate satisfactorily. As soon as the young plants have formed their rough leaves they are fit for use; but should only one sowing be made and it is desired to have a moderate supply, then thin out for present use the smallest, leaving the strongest to form large branching plants for a later supply. When frost sets in these should be covered with spare lights, or, if these are not available, with dry litter or mats. Take care, however, if protected with the latter not to cover longer than is absolutely necessary, as the flavour is thereby impaired. By frequent sowings, as above recommended, a supply of this can be secured until May.

PURLANE.—There are two varieties of this, the green and the golden, seeds of which should be sown early in August. Successional sowings may also be made according to the demand. Purslane requires a copious supply of water, lacking which it becomes too tough for salads. It may, however, be used for cooking and serving up in the same manner as Spinach. It is ready for salads as soon as it is 3 inches high. An outdoor supply cannot be depended upon after October, therefore should any be required afterwards it is safest to sow a pinch either in a frame or in a box and placed under protection.

DANDELION.—This is perhaps one of the easiest plants to cultivate, and one of the most troublesome pests when once it gets a firm hold in the garden. Seeds may be sown in spring in a spare corner of the garden, and in October the roots can be lifted and stored away for use till wanted. I commence forcing this in November, when roots are placed in any ordinary soil in a large deep box with a lid attached and perfectly dark. This box is placed under the stage of the forcing house, and in a couple of weeks the beautifully blanched and crisp leaves are

ready for cutting. It is highly esteemed by my employers on account of the brisk agreeable flavour it imparts to the contents of the salad bowl. If sufficient roots are forthcoming, by introducing batches into heat at intervals a supply can be kept up for a long time.

CHICORY.—One of the most valuable salad plants we possess for winter use, especially the variety known as Witloof, a more delicious and palatable form than the other varieties of Chicory. To have large crisp crowns, attention must be paid to the cultivation of the roots when growing. The soil should be well trenched and manured, after which seeds should be sown in April in drills a foot asunder, thinning out the young plants when large enough to handle to 9 inches apart in the row. Assist during their period of growth with occasional supplies of liquid or artificial manure. Lift the roots in October, and store away among sand in a cool shed until required for forcing. The roots may be forced in boxes similarly to the method recommended for Dandelion, or by putting a number of roots in a large pot and then placing an inverted flower pot over the crowns to exclude light, and standing it in a heated Mushroom or other warm house as most convenient. We, however, prefer the use of boxes as above recommended, as a much larger quantity of roots can be placed therein at one time.

LETTUCE.—As nearly every gardener can grow good Lettuces I shall not take up space by full details of its culture. To have a good supply during winter requires a little forethought in making the sowings and growing strong plants ready for taking up and storing in frames on the approach of frost. Much, too, depends upon the varieties grown for that purpose. Some, although good summer varieties, fail to answer satisfactorily for winter work. We have tried many varieties this last season, and find that there are no better Cabbage Lettuces than All the Year Round and Hardy Hammersmith for ending the winter. The best Cos we find to be the Brown-seeded Bath. I sow the last week in July for the winter crop. As soon as the plants are large enough to handle they are pricked out on Celery ridges and watered carefully. When the plants are established, weekly supplies of soot water are given them to encourage free growth. On the approach of frost they are lifted and stored in cold frames, which are well ventilated in cold weather.

Thus far I have written of large plants; but when a month or so has advanced in the new year a change is sought for, and as a rule the old plants are not appreciated, having become somewhat tough and deficient in flavour. How, then, is the difficulty to be overcome? I reply, By sowing a few pinches of surplus seed from last season; or, better still, the seed saved from a few plants allowed to seed in the summer. I take advantage of an inside border of an old Muscat house, and sow plots of three square yards at a time. This house is started early in the new year, when the border is slightly pricked over with a fork and manured with old hotbed refuse. In a few weeks after the seed is sown the young plants are 3 inches high, and are then fit for use. These are drawn up in little bunches, and are sent in with Mustard and Cress to form a salad. I grew a plot of Sutton's Earliest Brown Forcing Lettuce last season in this manner, and my experience of it as a tender Lettuce for such a purpose has led me to grow more of it this spring. Sowings may be made at intervals until the season has sufficiently advanced to do so out of doors.

RADISHES.—The varieties best adapted for early use are the Early White and Red Forcing Turnip-rooted, French Breakfast Olive-shaped, and Wood's Early Frame Long-rooted. A slight hotbed should be made with a few leaves and dung, the surface of the latter being covered with several inches of light rich soil, and as soon as the soil has become warm sow the seeds, afterwards slightly covering with soil and watering with tepid water. Should cold weather intervene it may be found necessary to apply a lining of hot dung around the frame to support the temperature. If allowed to suffer from an insufficient supply of water the Radishes will become hot and tough and unfit for a good salad.

MUSTARD AND CRESS.—These are indispensable constituents of the winter salad bowl, and besides possess the merit of being easily grown. As Cress, however, takes nearly double the time in germinating that Mustard does, only one sowing of the former need be made to a couple of the latter. Seed sown in shallow boxes in a gentle heat at intervals according to the quantity in request will secure an ample and constant supply.

ENDIVE.—This is one of the best of salad vegetables for autumn use. It supplies an agreeable change to the salad after the Lettuce, &c., of the summer months. In some establishments it is grown on a large scale, both for private consumption and for market. Some extraordinarily fine examples are to be oftentimes

seen in Covent Garden Market, thus showing the great perfection to which the London market gardeners grow this. Still we are told we are far behind our French neighbours in the high-class productions of salad vegetables, especially Endive. There are many different methods in practice for growing good Endive, all of which possess some merit. The plan I find best is to sow seeds on a south border at the end of July. As soon as the plants are large enough to be transplanted they are placed out a foot apart on a well-prepared border in which the soil has been enriched by a fair dressing of well-decayed dung. A little soot is sprinkled around the young plants, and if slugs are troublesome a little lime also; likewise see that they do not suffer from drought. By the end of September, or first week in October, the best plants are ready for lifting and storing in cold frames for late supply. Early in September, however, those that are not considered fit to lift and store away are covered with an inverted flower pot, taking care to stop the hole with a plug of moss to exclude light, or by placing ordinary flat roof tiles over the plants of the curled section, and by tying a piece of bast around the broad-leaved kinds similar to the method employed for Cos Lettuce in order to blanch them. These come in for use until frost destroys them, when recourse is had to those in frames. After storing those in frames every advantage is taken of fine days to admit plenty of air by throwing off the lights and carefully removing all decaying leaves. We have a quantity of dry leaves stored away in readiness for blanching the Endive when necessary. The dry leaves are spread over a portion of the plants to the depth of from 8 to 10 inches, which will perfectly blanch the Endive without producing or accelerating decay of the hearts, as is too often the case with other methods employed. The varieties we prefer best are the Moss Curled and Improved Round-leaved Batavian.

CELERY.—This is a most useful vegetable, being suitable for stewing, flavoured soups as well as salads. I need not enter into details of its culture further than point out a few important points which must not be overlooked. To produce good Celery, then, it is of primary importance to pay strict attention to giving a proper supply of liquid nourishment when in a growing state; secondly, taking great care in earthing up to draw the leaves firmly and closely together with the hand, whilst with the other the soil is placed around the plants. If this be not done perfectly blanched examples of Celery cannot possibly be obtained. Thirdly, see that the tops of the ridges are covered with litter, or, better still, with boards nailed together at right angles to throw off the heavy rains of autumn and winter, otherwise the plants will be found rotten when lifting late in the season. I find the best varieties to be Major Clarke's Red, Ivory's Nonsuch, and Sandringham White.

BEET.—Every gardener grows this favourite vegetable. It may be had in use all the year round. It requires a deep rich soil for producing roots of excellent quality, and must also be lifted with great care from the open ground, otherwise its roots will be broken, and a consequent loss of colour will ensue. Beet should be stored in layers of sand in a cool shed or cellar, where it will keep fresh for a long period.

I have now enumerated and described the various vegetables useful for winter salads, together with brief notes on their cultivation. Some will say the Cucumber is omitted, but this was purposely done for this reason: It is rarely if ever used now as a constituent of a good salad; but Tomatoes often are, and they are certainly more wholesome. The object of these notes is to include such vegetables as will make an agreeable salad for daily consumption from September till May, and these are chiefly penned for the benefit of younger gardeners and inexperienced amateurs.—A HEAD GARDENER.

FLOWER SHOW SCHEDULES.

I WAS very pleased to see "A Mid-Sussex Gardener's" letter on the above subject, page 110, and I think with him that many schedules need revising, as he says the entrance fees are very large at some of the Sussex shows. There are two things which may be said in their favour—they prevent, to a great extent, inferior things being shown, and also anyone from entering recklessly; I mean by that, entering and then not taking the plants, thereby causing trouble to the stagers, especially if much space is required. What may be said against them? They prevent or check competition. I believe many good plants are left at home because of the separate entrance fee required. An exhibitor would probably weigh his chance thus—"They are not so good as A and B showed last year, and I will not risk entrance money for chance of third prize;" whereas if they had not to be paid for separately he would probably

say—"Well, there will be better there, but I may get a prize; and if I do not they are no discredit to me, and will help to make a show." I also think the entrance in the fruit classes is heavier than in the plant classes. Certainly the plants cost more to take to the show, but the prizes are generally better and less competition than in the fruit classes. I will instance the competition in some of the classes at the last Eastbourne Show. Morello Cherries, thirty fruits, prizes 5s., 3s. 6d., 2s. 6d.; entrance 1s.; nine competitors (not entries). Black Grapes, three bunches, 15s., 10s., 5s.; entrance 1s., ten competitors; and eight competitors in the class for white Grapes. Nine dishes of fruit, 20s., 15s., 10s.; six competitors, or thirty-three bunches of Grapes and forty-three dishes of other fruit for less than £2. Most of the fruit and cut-flower classes were well contested. That does not bear out my idea that separate entrance fees check competition, but it certainly prevented me from showing in five fruit classes. I think a small fee for each entry up to 5s., and afterwards free entry, is quite enough.

While on the subject I would like to mention the almost suicidal course pursued by the Eastbourne Gardeners' and Cottagers' Mutual Improvement Society, who made a rule last year to the effect that anyone residing outside the parish is not eligible to become a member of the Society. The entrance fees of this Society are excessive. At the Summer Show they range from 5s. to 1s. for non-members, and there are thirty classes provided for members only to which no entrance fee is prefixed. At the Chrysanthemum Show the entry is 2s. 6d. for the first, and 1s. 6d. for each subsequent entry for non-members. It is also worth noting that for twenty-four incurved blooms (open) the prizes were 20s., 15s., 10s. For twelve blooms (members only) the prizes were 15s., 10s., 5s., and the same for Japanese. I cannot think a Society so selfish as this will prosper. I think all shows should be open, but classes provided for the small growers, from which the larger ones are excluded, as at Liverpool; but even the Liverpool gardeners reserve many of the classes to themselves at their Summer Show.—J. GORE.

In your issue of February 7th, page 110, "Mid-Sussex" calls attention to the above subject. His very sensible article is, I think, well timed, especially his remarks on the schedule of the Brighton and Sussex Horticultural Society. It is to be hoped the Committee will take the hint and make some radical changes in their schedule, which is far from being up to the times. Having been an exhibitor of Grapes at their shows for a number of years, I have been astonished and disappointed year after year that they do not offer prizes for other sorts than Black Hamburgs and White Muscats that would make a good display at their September shows. They evidently think that Muscat of Alexandria is an inferior Grape, and more easily grown than Black Hamburg. The prizes for six bunches of the latter are invariably more than for six bunches of White Muscat, which is a mistake. The entrance fees are too heavy. I agree with "Mid-Sussex" that to adopt some system of membership would pay better and give more general satisfaction. The younger members of the fraternity in Brighton have succeeded in establishing a Chrysanthemum Society, and that their first show last November was a great success, must have been patent to all who had the good fortune to see it. I daresay the slight omission as to what constitutes membership will be rectified in the prize schedule for this year, and it is to be hoped that "Mid-Sussex" and others in the locality will join in and make their success more complete.—EXHIBITOR.

SHRUBBY VERONICAS.

OUR indebtedness to New Zealand and Tasmania for the many new and rare additions to our already large collections of garden plants can hardly be over-estimated when the surprising way in which some of them adapt themselves to our average English winter is taken into consideration. That much remains yet to be done in the way of fresh introductions before we can form an adequate idea of the richness of the vegetation in those countries is shown in the words of a popular writer, who, in reference to Tasmania in particular, says, "Somersetshire cannot surpass her orchards, nor Devon match her flowers;" and even in the handbooks of the floras the many plants we see described as exquisite garden plants that have not yet been introduced lead us to hope for not a few genuine surprises, and anxiously await the result of some enthusiastic and enterprising collector's researches.

Of the New Zealand plants already introduced shrubby Veronicas form a fair proportion, and are useful in many ways, among which the decoration of the rockery and to give variety to the mixed flower border are not the least prominent, some few also being specially adapted for pot culture, and when well grown are by no means to be

despised either as window or table plants or for the greenhouse. Their cultivation is comparatively easy, the principal object being to obtain well-furnished plants, which is by no means difficult, as they will stand any amount of pinching back without injury, and may be left to the discretion of the grower.

I have found stopping the shoots early in spring the most successful way of obtaining dwarf bushy plants, and it does not in the least retard their free flowering. It is always advisable to keep them in rather small pots, giving a top-dressing of stable manure or liquid water in small quantities to compensate for the restriction.

V. TRAVERSII.—This is hardy except in very severe winters, is free-flowering and of neat habit. It seldom grows more than 1 to



Fig. 28.—*Veronica elliptica* (*decussata*).

2 feet in height, and its large spikes of white and purplish flowers somewhat in the way of the well-known *V. Andersonii* are very attractive; they are produced in the greatest profusion, and last more or less throughout the summer. The leaves are of a lively shining green, and for this reason the plant is extensively used in some large gardens for greenhouse decoration, together with many other fine-foliage plants to intermix with spring flowers. It is increased from cuttings with the greatest ease in the ordinary way. A native of the Middle Island, where it is found abundantly.

V. SALICIFOLIA.—One of the most variable of all the *Veronicas*, and under cultivation runs into many forms. It is one of the principal parents of the many hybrids which we have in gardens, among the best of which are *V. kermesina*, *V. Lindleyana*, *V. Andersonii*, *V. versicolor*, *V. linariæfolia*, and many others, the merits of which are pretty well known and appreciated. The flowers are produced in the same way as the above, and are variable both in size and colour.

This is a desirable plant for the conservatory, and very useful for planting between *Camellias* in beds.

V. PARVIFLORA.—This seems to be only a small variety of the preceding, has little less than neatness of habit to recommend it to the general cultivator. It should, however, find a place where a collection is desired.

V. MACROCARPA.—Although the most showy and desirable plant this is perhaps the most rare in gardens. In habit it is similar to *V. salicifolia*, but from which, as well as the others, it is distinguished by its larger and more elegant flowers, and for these merits alone it deserves a place in every garden.

Of hardy species we have a much larger number to choose from, and no one that has them nestling among the stones in the rockery can doubt their usefulness or appropriateness for this purpose. Indeed it would be difficult to find another class of plants more suitable, and possessing the twofold quality of enlivening with their flowers, which if not very attractive are interesting through the summer, and of breaking the monotony of bare stones and rocks with their shining green or glaucous leaves during winter.

V. ELLIPTICA syn. *V. DECUSSATA*.—In favourable situations this attains considerable dimensions in the course of two or three years, on account of which it should be planted in bold positions with good backing. It has been confounded with *V. formosa*, but how I am unable to determine, the latter being a small-leaved species from Tasmania, while *V. elliptica* has large broad oval-shaped leaves and is very distinct. The flowers, which are produced in clusters, are white or purplish, becoming more intense as they grow older. Fig. 28 shows a small flowering branch of this plant.

V. DIOSMEFOLIA.—A dwarf bushy species seldom attaining more than a foot in height, although only of recent introduction, quite long enough to show its qualifications for this work. It has been appropriately named "The Rockery Gem," the numerous flowers covering the plant.

V. PINGUIFOLIA.—This is deserving of notice as a desirable plant if only for its bright glaucous coloured leaves. It is very neat in habit, and has long been confounded in gardens with *V. carnosula*, from which it is said to differ only in its hairy capsule, the other being glabrous; but apart from this, the leaves of *V. carnosula* are not nearly so glaucous, and are inclined to be oblong.

V. SALICORNIOIDES.—I am not aware that this has flowered in this country, although it has been cultivated for many years. It is a very much-branched prostrate-growing species, and resembles a miniature *Cupressus*, for which it has been repeatedly palmed off on the credulous. It forms dense masses, and although a partial shade-loving plant it is apt to damp-off if moisture be allowed to become stagnant near its roots. It is easily raised from cuttings placed under a bellglass.

Among others equally desirable are *V. lævis*, *V. amplexicaulis*, *V. anomala*, *V. chathamica*, *V. epacridea*, *V. Haastii*, and *V. ligustrifolia*.—M. S.

CHALK v. LIME RUBBISH FOR VINE BORDERS.

I HAVE no recollection of seeing chalk recommended for mixing with the compost for Vines but once, and then I felt doubtful as to its good effects, or whether the Vines would care to come in contact with it or ramble among it, until a few days ago when about to make a new Vine border along the front of a house which had been planted with Vines in the inside about three years ago. The front wall next which the Vines had been planted was on arches, which had been filled with bricks packed one on the other, but no mortar used, and on the outside of these was packed a quantity of chalk as a further means of keeping back the roots, and as all this had to come away to admit of the new border it was found that the roots were rambling amongst the chalk and clinging to it with small fibres till the apertures between the chalk were a network of roots. This I took for granted that the Vines have no objection to chalk, but rather a liking for it, and as I have considerable difficulty in getting lime rubble for the purpose named I intend to use chalk instead. Probably there are many situated like myself at a distance from any place where much building is going on, and who have chalk close at home, and would be glad to avail themselves of it if they could put confidence in the results.—C. W. C.

HAREFIELD GROVE, NEAR RICKMANSWORTH.

THE seat of George Webster, Esq., is now a monster glass establishment. Somewhere about seventy houses, many of them of a considerable size, are devoted to horticultural purposes, all produce beyond the wants of the family being sent to market. French Beans, Tomatoes, and Melons are grown in enormous quantities. Six span-roofed houses, each from 100 to 110 feet in length, are used for growing Cucumbers. Grapes are extensively cultivated here, fifteen houses of various sizes being devoted to them, some of them being of a large size. There are also good Peach houses, and several

thousand pots of Strawberries are forced annually. Plants for supplying cut flowers are extensively grown, and Gardenias are grown to perfection and in quantities. There is a large stock of very fine specimen plants of *Eucharis amazonica*, which were in full bloom recently, and *Richardias* are grown in great number. Roses under glass are similarly abundant—a large number are planted out, and about 3000 plants are in pots. The kitchen garden and orchards are extensive, a new fruit garden of about 15 acres being added a year since, in which 50,000 fruit trees and bushes were planted. This will soon be one of the wonders of Harefield, and it is in contemplation to still further extend it. The pleasure grounds are pleasantly situated, and one of the largest lawn tennis grounds in the kingdom has just been laid out and planted. Harefield is easily reached from London *via* Watford and Rickmansworth, and is about a mile and a half from the latter station, and close to Moor Park and other celebrated horticultural establishments. Mr. John Gough, formerly head gardener to Lord Hampton, is in charge of Harefield, and a very large proportion of the glass has been erected under his supervision. —W. D. W.



CHATSWORTH.—We have authority for stating that MR. OWEN THOMAS of Impney Hall Gardens, Droitwich, and previously for several years head gardener to Sir Robert Peel at Drayton Manor, has been appointed to succeed the late Mr. Speed at Chatsworth. Mr. Thomas is a highly skilled gardener, and we have not a doubt that he will maintain the fame of the great gardens to which he is appointed and his own well-won reputation. He has on several occasions enriched our columns, and was the originator of Mr. Wright's work, "Mushrooms for the Million," that has had such a large sale since its publication.

— AMONGST the sums received during the week for the benefit of the family of the late MR. ALEXANDER HONEYMAN, Mr. Wright desires to acknowledge thankfully a donation of £1 from the assistance fund of the Edinburgh Horticultural Association. "A Devon Gardener," "A Camberwell Gardener," "W., Abergavenny," "Old Gardener," "J. R., Leeds," "A Working Gardener," "W. J., Kendal," and "A Dorking Gardener" have also sent contributions, which could not be acknowledged by post. Mrs. Honeyman and family have returned to Scotland. The expenses of the journey, with those attendant on the illness and interment of our lamented friend, having been met, any additions to the surplus will be gratefully acknowledged. The case is clearly before the public, and requires no special pleading. Of the five children left quite unprovided for the eldest is only nine years of age. Mr. Wright hopes to raise £15 more, and will then feel, for the present, that he has done his duty in this exceptionally painful case.

— AS a remarkable example of the MILD WINTER a correspondent sends the following—"Mr. Chas. Falkner of the Slough Hotel, Pershore, cut a branch off a Gooseberry tree on Thursday last with berries on as large as small peas, and strange to say red spider was noticed on the trees."

— MESSRS. E. WEBB & SONS, Wordsley, Stourbridge, send us a few flowers of some brightly coloured CYCLAMENS, of good size and excellent in form, the petals broad and rounded. Purple, red, pure white, and red and white, are the colours represented, the last-named being very pretty.

— THE BURY ST. EDMUNDS AND WEST SUFFOLK HORTICULTURAL SOCIETY SHOWS for the present year will be held upon July 3rd and September 11th and 12th in the Farnham Park and the Corn Exchange respectively.

— "CULTIVATOR" writes respecting the IMPROVED ROUND-LEAVED BATAVIAN ENDIVE as follows:—"I have a very high opinion of the above Endive, but your correspondent 'J. M.' appears to think it hardier than any other variety, but such is not the case in the north of England. The ordinary Batavian Endive has proved hardier here, and will stand more frost and rain; in fact, it should be grown in every garden as well as the above variety, more especially in localities where the rainfall is heavy and frost often severe. The rain

and damp atmosphere prove more detrimental to both varieties than dry frosts. I can confirm all 'J. M.' says in relation to its quality, for no other variety is equal to it in tenderness and flavour."

— THE remarkable SPECIMEN CYCLAMEN shown by Mr. J. Wiggins, gardener to W. Clay, Esq., Grove Road, Kingston, at Kensington last week, is one of the finest that has ever been exhibited, and well merited the cultural commendation awarded for it. The plant is about seven years old, and was growing in a 9-inch pot, the corm being quite concealed by the leaves, flowers, and buds. The specimen was in wonderful health, with strong beautifully marbled foliage, and over 300 flowers and expanding buds. The variety, which is named General Gordon, is of excellent habit, the flowers pure white, of moderate size, but very freely produced; and a number of younger plants, seedlings from this, exactly resemble their parent in these characters.

— A GOOD daughter of a good gardener sends the following note on the ANNIE ELIZABETH APPLE:—"My father wishes me to write you a line, while he smokes his pipe, to say that we consider Annie Elizabeth the finest cooking Apple on the earth." The specimens accompanying the note were very firm, and when cooked brisk and excellent.

— THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY'S EXHIBITIONS will be held in the Waverley Market, Edinburgh, on April 2nd and 3rd, July 9th and 10th, and September 17th and 18th. At the first Show £350 are offered in prizes, forced plants forming the leading features. At the second £256 are offered for miscellaneous plants, cut flowers, fruit, and vegetables. Prizes amounting to £270 will be given at the Autumn Show, fruit being largely provided for.

— MRS. R. B. DODGSON, widow of the late R. B. Dodgson, Esq., of Beardwood near Blackburn, whose collection of Orchids was one of the finest in Lancashire, died last month, having survived her husband little more than a year, made many very large bequests to public institutions, and among the rest £500 to the Gardeners' Royal Benevolent Institution.

— THE annual dinner of the HORTICULTURAL CLUB took place on Tuesday last, and was numerously attended. The chair was taken by Mr. John Lee, Chairman of the Committee, and amongst those present were Dr. Hogg, Rev. F. H. Gall, Rev. Th. Flintoff; Messrs. J. D. T. Llewelyn, Shirley Hibberd, Harry J. Veitch, George Deal, J. F. Strange, C. P. Wheatstone, Herbert J. Adams, J. S. Cousens, Ch. F. Druery, H. W. Slottentoff, &c. It was announced that the Club had during the past year subscribed ten guineas to the Gardeners' Benevolent Institution, and that the following gentlemen had been elected members of the Committee in lieu of four who had retired according to rule—Messrs. Shirley Hibberd, Harry Turner, Ch. F. Druery, and the Rev. Theodore Flintoff. A report was agreed on, and will shortly be issued.

— A CORRESPONDENT informs us of a case of MUSHROOM-GROWING UNDER NOVEL CIRCUMSTANCES in the following words:—"Tell Mr. Wright I lent my copy of his work on Mushrooms to an old man, and he has now Mushrooms growing under the table in his room. He has cut one dish, and will have others as the crop is coming on well, now eight weeks after spawning. He has another box in his cupboard on the bottom shelf amongst the china, and evidently means business." The "old man" will at least have home-grown Mushrooms, and we hope he will enjoy them.

— VERY distinct and attractive in Mr. Major's greenhouse at Croydon are some strong-flowering plants of VELTHEIMIA VIRIDIFOLIA, the stout Tritoma-like spikes (18 inches high) bearing a number of rosy flesh-coloured flowers. The stems, springing from a mass of rich deep shining green foliage, have a telling effect among Hyacinths and other spring flowers, and similar examples could not fail being admired in conservatories in which they might be so easily produced. This good old, yet seldom seen, Cape bulbous plant succeeds in cold frames during the summer, and flowers freely in a greenhouse temperature at this period of the year. Strong plants well grown form very large bulbs, and produce offsets freely. A number of spikes are produced from the plants in 8-inch pots, and the flowers continue in beauty for several weeks.

— THE ROYAL BOTANICAL AND HORTICULTURAL SOCIETY OF MANCHESTER will hold their annual national Exhibition in the gardens

at Old Trafford from May 30th to June 6th. The prizes are very liberal in seventy-nine classes, especial prominence being as usual accorded to Orchids, to which eight classes are devoted, the total amount of prize money in these being £156. Stove and greenhouse plants, Ferns, fine-foliage plants, Perlargoniums, hardy plants, Roses, Clematises, miscellaneous plants, and fruit being well provided for.

— A BRISTOL correspondent writes:—"A few years ago there was in the gardens under my charge a good-sized bush of the female *GARRYA ELLIPTICA*, most unfortunately placed, being much overgrown by other things. Finding that it was extremely rare, I cleared away round it. It grew very well for a couple of years, and fruited, but from some cause or other, which I never could quite understand, it suddenly died. Fortunately I had put in a few cuttings, and had, when the old specimen died, two good plants. These I planted out the year before I left. They should by this time be getting to a good size. I also raised a batch of seedlings. Mr. Wm. Garaway, of the firm of Messrs. Garaway & Co., told me that nearly all the seedlings came male. Perhaps 'J. S.'s' plant is from Messrs. Garaway's stock. They have raised a large number from the plant above-named years before I knew the place. If 'J. S.' desires to raise plants from his seed he must wait patiently for their appearance, they take a long time to germinate. I could send you a bunch of fruit (dry, but not pressed) if you wish." We shall be obliged to our correspondent for the specimens offered.

— "VISITOR" writes:—"I observed at the last meeting of the Royal Horticultural Society at Kensington a plant shown by Mr. B. S. Williams under the name of *JAMBOSA ACIDA*, which appeared to me to bear an exceedingly close resemblance to *Grias cauliflora*, the Anchovy Pear, an effective, handsome, but little known tree from Jamaica."

— THE National Auricula Society's Southern Show is to be held at Kensington on April 22nd, and the National Carnation and Picotee Society's Show on July 22nd. Veitch Memorial medals and prizes of £5 will be offered at the first named for twelve show distinct Auriculas (amateurs and gentlemen's gardeners), and at the last for twelve Cartons (excluding selfs) and six Picotees. The substantial balance of £26 15s. 2d. has been secured by the Carnation Society, the Auricula Society having £6 8s. 10d. in their favour.

— MESSRS. BARR & SON, King Street, Covent Garden, send us a specimen plant of *MAY'S NORTHAU BRUSSELS SPROUTS*, a variety of very fine appearance, which has been frequently successfully exhibited by the raiser, Mr. May, The Gardens, Northau House, Barnet, and at the last Show of the Borough of Hackney Society at the Royal Aquarium his specimens of these Sprouts were much admired. The sample under notice is 2½ feet high, the stem for 1 foot 8 inches of its length being covered with closely packed firm sprouts from 1 inch to 1½ in diameter. It is evidently a useful form of this important vegetable, and is very tender and of good flavour when cooked.

— A VISITOR to the NATIONAL AGRICULTURAL AND HORTICULTURAL EXHIBITION AT PARIS, which opened on the 11th inst., and continued until the 20th inst., states that it included a very large quantity of field and garden produce, such as grain, vegetables, fresh and dried fruits. A pretty display of flowers was also provided, and added much to the beauty of an extensive exhibition, which filled many rooms in the Palais de l'Industrie.

— MR. CHARLES WHITEHEAD'S essay on PROFITABLE FRUIT FARMING, published by Messrs. Longmans, Green & Co., contains matter of great interest to cultivators of hardy fruits either on a large or small scale, and it is commended to the attention of all who are interested in this important subject. That there is still a market for home-grown fruit is evident from the statement of the author that "only about 29,000 acres have been added to the acreage of fruit land in the United Kingdom during the last eleven years; or 190,710 acres in 1883, as against 160,857 acres in 1872. The annual average amount of raw fruit imported into this country since 1875 is close upon 4,000,000 bushels. The annual average produce of the English fruit land may be estimated at something like 9,000,000 bushels, making with the imported raw fruit a total of about 13,000,000 bushels of fruit available for the United Kingdom. From this amount at least 3,000,000 bushels must be deducted in respect of the Apples and Pears grown upon the orchard land, which are supposed to be used for cider and perry making; and this would leave only 10,000,000 bushels of raw

fruit for the consumption of the 35,246,562 inhabitants of the United Kingdom, to make all the jam, and to supply all the fresh fruit for puddings and pies, and all the fruit that is eaten raw by the whole community, to say nothing about the large quantity of preserves and preserves, lozenges, extracts and essences for home use and for exportation."

— MR. WILLIAM MARRIOTT writes:—"The Council of the Royal Meteorological Society have arranged to hold at 25, Great George Street, S.W., by permission of the President and Council of the Institution of Civil Engineers, on the evening of March 19th next, an EXHIBITION of THERMOMETERS; I am therefore instructed by the Exhibition Committee to invite co-operation, as they are anxious to obtain as large a collection as possible of such instruments. The Committee will also be glad to show any new meteorological apparatus invented or first constructed since last March, as well as photographs and drawings possessing meteorological interest. Should any persons be willing to co-operate in the proposed Exhibition, I should be obliged by their furnishing me (by March 1st) with a list of the articles they will be able to contribute, and an estimate of the space they will require."

— "M. S." writes:—"Surpassing in beauty the old and well-known *Dentaria digitata*, *DENTARIA POLYPHYLLA* is a welcome visitor at this early season, and a great acquisition to our spring-flowering plants. Dwarf in habit, it is seldom more than from 4 to 6 inches in height. The flowers which terminate the branches are creamy white, and are borne in clusters, reminding us of the *Arachis hypogaea*, as they are formed underground, and unless the plants are strong, are often spoiled before they push through. A good loamy soil in a sheltered situation suits it admirably."

— THE "BOTANICAL MAGAZINE" for February contains plates of the following plants:—*Nymphaea alba* var. *rubra*, an extremely pretty Water Lily, with bright rosy-red flowers, which Sir Joseph Hooker thinks will be greatly improved under cultivation. *Tilia petiolaris*, a species resembling the White Lime, and known under the names *T. americana pendula*, *T. alba pendula*, *T. platyphylla pendula*, and *T. argentea pendula*. It is quite hardy and produces its fragrant flowers in July. *Pentstemon labrosus*, a Californian species with small scarlet flowers and very narrow leaves. It was found by Dr. Rothrock "during Wheeler's expedition in 1875 in Mount Pinos, south of Tejou, at an elevation of 7000 feet, and introduced to this country by Mr. W. Thompson of Ipswich, with whom it flowered in August last year." *Gladiolus Quartianus*, though this is described as having a claim "to take rank amongst the finest species of the genus," it is, judging by the plate, scarcely satisfactory in a horticultural point of view, the flowers being dull yellow streaked with red. The first specimens received in England were sent by Sir John Kirk a short time since, and flowered at Kew last October. *Masdevallia Schlimii*, a beautiful species, discovered in 1847 by Louis Schlim, half brother of M. Linden, but not introduced until recently by Messrs. Sander & Co. of St. Albans. The flowers are yellow, mottled and spotted with reddish brown, the tails yellow and 2 inches long. It is free-flowering, bearing scapes of four or six blooms. *Notospartium Carmichaeliae*, a very distinct member of the Leguminosæ, known in New Zealand as "Pink Broom." It forms a leafless shrub or small tree 20 feet high, with slender drooping branches bearing short racemes of small purplish flowers.

— INTERNATIONAL HEALTH EXHIBITION.—Preparations for the holding of this Exhibition at South Kensington are proceeding rapidly. The Board of Trade have certified that the Exhibition is an International Exhibition, and exhibitors thereat will accordingly participate in the privileges accorded by the Patents, Designs and Trade Marks Act of 1883. The officers of Her Majesty's Customs have also announced that the Lords of the Treasury have consented to the buildings being considered as a bonded warehouse during the continuance of the Exhibition, as was the case at the late Fisheries Exhibition. The General Committee now numbers nearly 400 members, and from these seventeen Sub-Committees have been formed. These have all been doing valuable work in advising the Executive Council as to the nature of objects which it is desirable should be fully illustrated, in obtaining the co-operation of many persons of eminence in the various branches on which the Exhibition will treat, and in supervising the applications for space. The allotment of space, which has been largely applied for, is being rapidly proceeded with, and applicants will soon be informed of the

decision of the Executive Council with regard to their applications. In response to a request made by His Royal Highness the Prince of Wales, President of the Exhibition, the eight Water Companies of London have resolved to exhibit, in a pavilion which is being erected for them, their appliances for the supply, filtration, &c., of water, together with diagrams showing the various processes and localities; and a powerful Sub-Committee, under the active chairmanship of Colonel Sir Francis Bolton, has been formed to carry out this branch of the Exhibition. The Water Companies have also determined to put up in the grounds a large fountain, which will be illuminated at night by electricity. This fountain of light will, it is anticipated, materially add to the beauty of the illumination of the gardens. It is impossible as yet to give any definite information with regard to foreign countries; but, so far as one can judge at present, Belgium, China, and India will be the best represented. A Royal Commission has been appointed in Belgium, and the Consul-General in London is their active representative here. To China has been allotted the space which it occupied last year at the Fisheries Exhibition, and a Chinese tea garden, restaurant and shop will not be the least interesting objects in the Exhibition. India is to be adjacent to China, and strenuous exertions are being made to secure the united action of many of the principal Tea-planters in India, so as to insure a good and representative show of the Indian Tea-growing industry.

HARDY PLANTS IN FLOWER.

SNOWDROPS.—Nothing is more pleasurable than commencing these notes with these charming offspring of the early year, for I cannot boast of having varieties which in the late months of the dying year, although such there are. The late Rev. Harpur Crewe possessed many varieties of *Galanthus nivalis*, the earliest of which commenced to bloom in October, and others kept up the succession till March—five months of Snowdrops! Happily the collection of the reverend enthusiast has passed into the kindly keeping of another ardent lover of hardy flowers, and we are sure they will be well cared for, and trust in due time will be distributed, but of course many years will elapse before many of us can hope to cultivate the entire series. *G. nivalis*, the common species, is very variable in size, form of the perianth division, and leaf size; but as far as I have examined all are characterised by the green inside of the inner divisions and the green blotches at the back of the upper part of the same without the green at the base so characteristic of *G. Elwesi*; but as I have not examined all the varieties, but it will not do to designate this as a hard-and-fast characteristic.

Galanthus Elwesi.—This is in my opinion as pretty as any Snowdrop in cultivation. Several years since, when first introduced by the enthusiastic bulbophile in whose honour it is named, I noticed two or three plants in flower at Kew, and was struck with its distinctness—the globular form of perianth with brown segments, the distinct green blotches at the base of the inner divisions, and rather broad short glaucous leaves. Mr. Elwes is quite disappointed with what is now under cultivation when compared with what he saw when the species was discovered, and he thinks it degrades in our English gardens. It may, but I think not—i.e., the true form; but dealers have collected thousands of bulbs regardless of character, the majority of which are very poor forms of it. I have lately seen a bed perhaps of two thousand bulbs, and noticed how few were really the typical *G. Elwesi*, which was distinguishable by its precocity, longer and more globular flowers with a stouter consistency, and these stood head and shoulders above the rest. I still have hopes that this beautiful Snowdrop will hold its own.

G. plicatus—the Crimean species—is very fine, a strong grower, with flowers combining the characteristics of *G. nivalis* and *G. Elwesi* and longer than either, but most easily distinguished by the broad plicated leaves. I am sure this as well as many other bulbs require to be planted deeply. I pulled up a peduncle the other day which measured 18 inches in length, equal distances above and below the surface of the ground, and the batch from which this was taken is very vigorous and healthy.

G. Imperati.—Though generally regarded as a distinct species is certainly nothing more than a strong-growing variety of *G. nivalis*, but nevertheless most desirable, producing flowers as large as any I know, and a clump of it is an ornament of no mean value.

G. Redoutii.—Superficially this is very distinct, chiefly in the foliage. The flowers appertain to *G. nivalis*, but the leaves are unique as far as I know, a Snowdrop looking more like a Leu-

coium, long and broad, of a deep shining green colour, not at all glaucous; the flowers are comparatively small and thin in texture. It is well worth growing.

COLCHICUM MONTANUM (syn. with *C. bulbocodioides*, Bieb.).—This is a desirable little species, as it flowers now instead of with the majority of its congeners in the autumn; and another peculiarity is the leaves precede the flowers. The former are about 4 inches long, deep green, slightly glaucous, oblong-lanceolate in form; perianth 3 to 4 inches high; the limb segments about an inch long, oblong, at first nearly white, changing to pale pink: when expanded the flowers are from 1½ to 2 inches across. It came to me under the name of *C. Bertoloni*, a species I am unacquainted with. If some reader of the Journal could inform us whether this is also a synonym of *C. montanum* good service would be done. I like the plant very much, a good tuft has been in flower some time.

SCILLA BIFOLIA.—This is, I think, one of the smallest of the Squills, flowering so early in the year, and when the bulbs get thoroughly established they send up dense tufts of the starchy blue flowers, any spike of which is good enough to arrange in a buttonhole or hair ornament. But the variety *alba* claims first rank for this purpose, its delicate small racemes of pure white flowers being very desirable. It is certainly a gem of the first water, but is rather later-flowering than the type. My bulbs will be quite three or four weeks later. There is a variety named *grandiflora*, also another named *corymbosa*, both of which are now in flower. The form has longer and more crowded spikes of flowers which are of a rather deeper shade of blue, while the latter has corymbose spikes of thickly set flowers of the same colour as *grandiflora*. Both these varieties are very desirable, but in my opinion do not equal *alba*.

S. AMENA.—This is but a variety of *S. sibirica*, which it resembles very much, and is generally distributed with that species, but it flowers much earlier, and is a rather deeper blue than *sibirica*. It is now in full flower, whereas the latter is only just peeping above ground and will not be in flower for a month or so. In a larger batch I have, all of which were supposed to be *S. sibirica*, numbers of them are in full flower, dotted here and there all over the beds. It is desirable on account of its earliness, more particularly as it is not superior to *S. sibirica*.

ERANTHIS HYEMALIS (the Winter Aconite).—Although common this is a bright little gem, and should be very extensively planted in the wild garden, woodland, near the margins of lakes, and in shrubberies, as it lights up the surface with its sheen of golden blossoms and bright greenery. Curtis in his time thought it worth a place in the pages of his "Botanical Magazine," a figure of it appearing in vol. i., fig. 3, under the name of *Helleborus hyemalis*.

IRIS RETICULATA.—This is just opening its first flowers, while the variety *Krelagei* is nearly past. I had two large clumps of the latter, each with about a score or more flowers, and a charming picture they have been, but not so deep in colour as the type, which after all is my favourite. I have a clump which will have at least thirty flowers of that rich deep violet-purple colour with golden marks at the upper part of the divisions—a charming and very effective contrast, the flowers smelling strongly of Violets. If I grew but one Iris I think it would be this; it comes at a period of the year when the garden is usually far from enjoyable, which makes it all the more welcome to some, and it is so lovely and distinct. It requires to be planted deeply—quite 8 inches, in rich light sandy loam, and to remain undisturbed for years.

LEUCOJUM VERNUM (the Vernal Snowflake).—A very beautiful little plant, and when seen in broad masses is very attractive. It grows about 6 inches high. The peduncles are one to three-flowered, most frequently with but one flower, drooping, about 1½ inch across when expanded, with six nearly equal perianth divisions, white, with a dorsal yellowish green blotch at the apex of each; very useful for cutting and forcing. Who has seen the double-flowered *L. vernum*? If any of the readers of the Journal can give testimony as to its actual existence I shall be happy to make a note of it and hope on, for I have two bulbs which were bought on the continent as the double variety, which up to the present have refused to produce flowers, although treated liberally.

DORONICUM PLANTAGINEUM EXCELSUM.—Such is the name which I hope is generally received for this plant, resulting from the efforts of the Rev. C. Wolley Dod to establish for it a permanent name. Last year it was freely circulated by a firm under the name of *D. hybridum*, but I fancy the same firm is offering it under the name of *D. draytonense*, favouring the place where it originated. I hope my surmise may be wrong, for nothing is more misleading than the multiplication of different

names for the same plant. It is certainly a variety of *D. plantagineum*, and the name *excelsum* is very applicable. Several flowers are expanding, and it will be in bloom from the present time till late in the summer, and it will force splendidly; indeed one may enjoy it through nearly all the dull winter months if properly handled. The large bright yellow flowers are so effective at all times, and it grows so freely almost anywhere, that it constitutes one of the best hardy perennials in cultivation.—T.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 12TH.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Cuscuta Trifolii.—Mr. W. G. Smith exhibited young Clover plants with seedling specimens of this parasite just commencing to twine themselves about it; some had the seed skin still attached to the radicle. He observed that, while some seeds germinated in a few days, others required months.

Mushroom Spawn.—Mr. Alfred Bennett read a communication bearing upon certain difficulties of introducing the French system of growing Mushrooms in underground quarries. It was referred to Mr. Berkeley for report.

Electric Light on Plants.—Mr. Boulger called attention to a paragraph in *The Garden* referring to experiments by Mr. R. Cross on Potatoes germinating under the electric light alone, being kept in the dark during the day. Under these circumstances it was asserted that no chlorophyll was produced at all.

Hyacinths Growing in the Dark.—Mr. Smee showed a bulb which had germinated in the dark after being left in it for two years, and a malformed blossom of *Zygopetalum Mackayi* in which the lip had been arrested.

Stanhopea, Hardy.—Hon. and Rev. Mr. Boscawen informed the meeting that he had placed a plant in an open cold shed. It withstood 13° of frost in November and again in January, and now is in a most healthy condition.

Diseased Pear Stem.—Sir J. D. Hooker exhibited a stem of a Pear received from Belvoir Castle with an injured surface. The bark is smooth and wood dead. The opinion of Mr. Berkeley and Sir J. D. Hooker was that the appearance was due to excessive heat, being sunburnt.

New Species of Potatoes.—Sir J. D. Hooker showed drawings of the two new species of Potato prepared from the *Botanical Magazine*—viz., *Solanum Maglia* from Chili, and *S. Jamesi* from Arizona. Remarks were made on semi-naturalised condition of Potatoes in various parts of Scotland, as Clova, Glenesk, and Glenshee. In some places, according to Mr. Loder, the Potatoes had been growing for forty years after the departure of the original inhabitants, but crops were habitually taken from them.

Lenzites gibba var. tenuior.—Mr. Berkeley exhibited a fine specimen of this fungus growing from a Beech stump. It is usually much thicker, but it has grown with a thin structure from its habit. It was received from St. Leonard's Forest.

On the Spore-retaining Power of Sand.—A communication from Mr. Plowright was read on this subject, containing a criticism of Mr. W. J. Smith's examination of sand (*Gardeners' Chronicle* of Feb. 2, p. 153), in which the gentleman gave a fig. of a grain nearly 2½ inches in length, representing a multiplication of 40 diameters. Hence the grain is nearly 1-16th of an inch, but described as of extremely fine sand. Mr. Plowright maintains that it is the size of the interstices that is of importance, not the grains. Experiments were made with sand in tubes, and the excellence of that material as a filter depends upon the fact that the water causes the larger grains to subside first, and the smaller subsequently fill up the interstices. The wedging takes place only at the uppermost part. Experiments were detailed showing that neither a heavy powder, as red lead, nor a light one, as lamp-black, were allowed to pass through. Similarly with water charged with *Ustilago*, so much so that it resembled ink, none passed through; and finally, water charged with Potato spores filtered through and upon fresh slices of Potatoes; the latter, however, were not diseased, though certain specimens treated with water so charged became diseased.

Further Observations of Mr. Jensen upon the Potato Disease.—A long communication was received from the same gentleman dealing with the following matters: (1) Rapidity with which the disease spreads. (2) Early disease, a small crop; late disease, a large crop. (3) Influence of temperature upon the disease. (4) Can we do anything to retard the outbreak of the disease? (5) Is the foliage more susceptible to disease when the plants have attained a certain stage of development? (6) The spread of the disease in Nature. (7) Hybernation of the disease. The whole of this communication will shortly appear in the *Gardeners' Chronicle*.

Circumnutation in Root Hairs.—The Rev. J. Henslow showed drawings by Mr. Saunderson, of Ealing, of roots of *Poa pratensis* growing in water, the abundant root hairs of which showed remarkable coils and spiral twisting. He observed that pollen-tubes grown freely will twist in a similar manner.

Plants Exhibited.—*Galanthus nivalis* vars.—Mr. Loder showed the following vars.: *lutescens*, *angustifolius*, *poculiformis* fl.-pl., *Imperati*, *plicatus*, *Elwesi*, *Redoutei*. He also exhibited *Crocus Imperati* var. *albiflorus*. Dr. Lowe observed that it had been heard of in Italy, but not known for 105 years. He, however, discovered one plant amongst a patch of the purple form, about thirty miles from Naples, at Tocarna. Mr. Loder also showed *Crocus ochroleucus* and *C. Balansæ*, as well as a finely grown specimen of *Musa Ensete* in flower, though only one year old. He observed that it flowers and seeds in the south of France.

SPECIAL SOCIETIES.

It seems to me that I have become involved in a larger correspondence than the necessities of the case as it was first put required. A correspondent found fault with the schedule of the National Auricula Society, and I sent him a copy through the Editor, thinking he might be able to make some suggestions for the improvement of it. He made no suggestion that I could bring before the Committee. Then came the usual bud of anonymous correspondents, imputing interested motives to

members of the National Societies in general and your humble servant in particular.

To make this matter clear we must go back about twelve or fourteen years, to the time when the Metropolitan Floral Society was founded. The Rev. H. H. Dombrain was Secretary. At that time the Auricula was almost an unknown plant. Mr. Dombrain, Mr. James, and a Mr. Butcher were the only growers near London. I was a subscriber to that Society, although I grew no Auriculas or Carnations. The prizes offered were of course divided between Mr. Dombrain and Mr. James. I did not complain of this; no complaint was made by anybody. Interested motives were not thought of. However, I was urged to take up the Auricula. I did take it up, and in a year or two I beat Mr. James and Mr. Dombrain; and, although I only grew a three-light frameful of plants, I beat Mr. Charles Turner of Slough for the best fifty at the Royal Aquarium. It was now thought that the best thing to do was to break up the Metropolitan Floral Society, on the ground that "florist flowers were at a discount in the south." I could see other growers taking up the culture of the Auricula, and was not satisfied that the whole thing should be brought to so abrupt a termination. Being at one of the northern shows at Manchester a few years later, in company with my esteemed colleague Mr. Dodwell, we were urged to resuscitate the exhibitions in the south. We did so, and the National Auricula, Carnation, and Picotee Societies are the result.

I must, by leave of the Editor, enlarge on another subject, and that is the selling of plants. I did not raise this question; but my name has been so mixed up with it, especially at page 128 by "Fair Play," that it does seem to me at least that there is some ulterior motive behind this. I can fancy the thought may occur to some persons' minds who are anxious for "fair play." "Here is Douglas, a gentleman's gardener, making a rare good thing by selling his master's plants. Surely this is wrong, let us give his employer a hint." It is very kind of your correspondents, and quite right that they should look after other people's business, especially if they have none of their own to attend to. Well, if it pleases them it does not hurt me. Quite recently I stated in this Journal that I did not sell Auriculas nor Carnations and Picotees, and why did I do so? "D., Deal," gave a short report of Mr. Penson's Auriculas, and stated that they were supplied principally by Mr. Douglas. I had no hand whatever in forming Mr. Penson's collection, except that I let him have two plants which he had some difficulty in obtaining. They were the first and the last plants I ever supplied him with. "D., Deal," did not think it worth while to write to me and apologise for hurting my feelings. Considering the way some of your correspondents under the cloak of a *nom de plume* write about me, one would think I had no feelings to hurt.

In 1882 Mr. Cannell had our surplus Carnations, and this year Mr. Turner had them. If the information is of any use to your readers—I opine it is—may I further trespass on your kindness to say that I cannot supply any plants of my new Auriculas, *Silvia* and *Conservative*? They will be placed in the hands of Mr. Turner of Slough for distribution on the 1st of May next. I must repeat again, in answer to "Auricula," that I have no control over exhibitors. They must conform to the rules of the schedule, which has been drawn up and carefully revised by the Committee. I may also say that the shows will be held as usual under the auspices of the Royal Horticultural Society on the 22nd April and 22nd July respectively. The schedules will be published immediately.—J. DOUGLAS, *Great Gearies, Ilford*.

[We are fully convinced that not one of our correspondents had the slightest thought that Mr. Douglas was acting unfairly towards his employer; and as to conveying intelligence of that nature in the manner and with the object indicated, the supposition falls to the ground in face of the fact that Mr. Douglas's surplus plants have been publicly advertised for sale by a florist. When Mr. Douglas announced that he did "not sell Auriculas" he intended, we presume, that he did not do so in a retail manner to amateurs. If he had said so at the time, or stated what he states now, that he disposed of his surplus stock to florists, no misunderstanding could have arisen. He is perfectly justified in doing this with the consent of his employer, and we are quite satisfied that he has that consent in all his transactions in growing, exhibiting, and disposing of plants.]

HOW PLANTS OBTAIN THEIR FOOD FROM THE SOIL.

ON page 49 of the Journal "Querist" in his "Advice to Young Gardeners" says, "I do not suppose the average young gardener knows what the various manures are composed of, or in what way they are beneficial to plant life; nor yet perhaps do they know how plants obtain their food from the soil." If such be the case it cannot be out of place to bring such important questions before the notice of young gardeners who are constant readers of the *Journal of Horticulture*. I will, therefore, endeavour (as an under gardener) to answer the questions put by "Querist," as far as my knowledge will permit me. I purpose, however, first to show how plants obtain their food from the soil, and afterwards to show how that food can be added to the land by the application of manure.

First, if a plant is burnt we find part passes off in vapour and smoke, while another portion remains as ash. Thus we have two distinct classes of elements and compounds—volatile matter, and non-volatile substances. The volatile elements are oxygen, nitrogen, hydrogen, and carbon. The others are silica, lime, potash, soda, magnesia, and iron oxides, combined with phosphoric acid, carbonic acid, and sulphuric acid.

These elements and compounds found in a plant must have been supplied to it in its food, and this food is chiefly obtained from the soil in which the plant has grown. A soil may, however, contain large supplies of every substance which a plant requires, and may still be unable to yield them, because it is not in a condition available as food. Nothing is of any service as plant food unless it will dissolve in rain water, as a plant cannot take up anything in a solid state—it must be in a state of solution. Those portions of the soil, therefore, which can be dissolved in rain water are known as active, whilst those which will not dissolve in rain water are termed inactive. It is the active portion which is of immediate use to us as plant food, as it is in a state of solution, and is readily taken up by plants to nourish and support them.

The inactive portion, however, is not valueless in our soils, as it is quite possible to make it take an active form. It can be done by thorough cultivation of the land, for, as we all know, by exposing soil to the action of air and frost it is broken into a fine condition, which increases the amount of surface. Rain water can then pass through and into the soil, which, with its oxygen and carbonic acid together with the atmospheric agencies, will perseveringly bring that matter into solution, when it can be used as plant food; so that the inactive matter really preserves plant food, which can be called upon by the use of atmospheric agencies, and be equivalent to the addition of so much manure. This solution is then taken into the circulation of the plant through the small rootlets, which are constantly in search of food. A small portion of the organic matter is, however, taken in from the atmosphere, but as so much is absorbed from the soil we see the importance of adding to our soils plant food, which we do in the form of manure, upon which I purpose to speak at a future time.—UNDER GARDENER.

MR. ALEXANDER HONEYMAN.

IN accordance with our intimation of last week we publish a portrait of this accomplished gardener and striking and instructive writer, with an outline of his life. This we are able to do in the form of an autobiography, and under rather singular circumstances. About four years ago, and after having recognised his ability as an occasional contributor to our columns, Mr. Honeyman was invited to fill a vacancy on the staff of this Journal. Desirous that we should know something of his character and antecedents he sent the communication which we now publish. Under ordinary circumstances the letters of correspondents are not for obvious reasons preserved, but this one escaped destruction. At the time it was written our correspondent was strong and well with a promising future before him, and there was then no thought that his career would terminate so soon. The letter will not be the less interesting, inasmuch as its publication was not contemplated; it was simply a private letter, spontaneously penned, and, like other long private letters, would only be glanced at at the time of its arrival, hence was put aside for after perusal. Concisely is the sketch of our friend's life given. Vividly is his character portrayed. His life of labour, his thirsting for knowledge, his striving efforts at self-improvement, his untiring searching for truth, his perseverance, his determination to excel, all are visible. And what a lesson such a life is to young men. We know many of these are worthily striving, and glad shall we be if one can be found able to take up his "begun work," and continue it as he, had he been spared, would have continued it himself. In the letter which we now insert will be found the secret of his competency—constantly and unremittingly acquiring and storing knowledge; in it will also be found the origin of his once familiar and not soon-to-be-forgotten pseudonym "SINGLE-HANDED."

31st October, 1881.

SIR,—I promised in my last to acquaint you with some of the main points in my history, and I now take the opportunity of putting the same on paper. I was born at Ballo-Mill, Ladybank, Fifeshire, in April, 1851. My forefathers had been settled there for a century or two. I am, through my mother, descended from Andrew Melville, who gave Scotland Presbyterianism—the same man who, in a passion, informed James VI. that he "was God's ain silly vassal." In my youth—I left school at twelve—I spent two years with my uncle at railway-making, and learned some useful lessons, which have been of great benefit to me on more than one occasion. It was at this time that I acquired a taste for reading, and used to save my pence to buy papers.

At seventeen I went to Ramornie Gardens, the seat of F. L. Maitland-Heriot, Esq., lately deceased, to learn to be a gardener. The "youngest" and at once the oldest 'prentice I was frightened at being so long in going to the "profession," and did myself some physical injury in my eagerness to make up for lost time. All the gardening books I could get—such as "Mackintosh's Book of the Garden," Loudon's "Encyclopædia," Nicol's works, and half a dozen volumes of the "Scottish Gardener," were intensely studied. I became impressed with the idea that no one could be an accomplished gardener who was not well up in botany, geology, and chemistry. The cheapest way of securing works on these subjects was by buying "Cassell's Popular Educator." This I studied so intently that the doctor had to be sent for. Mr. Heriot lent me Balfour's "Elements" and "Class Books of Botany," Macgillivray's "Manual of Geology," Hugh Miller's works, Bence Jones and Miller's "Chemistry," and Liebig's "Agricultural Chemistry," with many others were also read attentively and studied closely while an apprentice. Ramornie was then a good old country garden. The collection of hardy fruit trees was as complete as nearly could be, and the gardener was one of the olden times, who went in for perfection in training, while all other branches of gardening were well conducted. The notes I took then I found of much value afterwards. When I left, which I did at the end of three years, I carried with me very flattering testimonials.

I then went to Delvine Castle, Dunkeld, the seat of Sir Alexander Muir-Mackenzie, Bart., at the Martinmas term, and was soon promoted to be inside

foreman. From thence I went to Kerse House, Falkirk, one of the seats of the Earl of Zetland, and served under a first-rate gardener; but after a year was tempted to leave to lay out a new garden on a somewhat extensive scale. Only a little was done, however; in fact, I was "sold." Another gentleman then advertising for a gardener "accustomed to glass," I applied, was shown plans for a good range of plant and some fruit houses, and engaged. The work commenced and good progress made in two years, also in taking in ground and planting. "Calculating" chances—and they looked good—I married; but just as we were preparing to finish the ranges of glass comes the City of Glasgow Bank smash, and everything was stopped. My employer always met his calls, but the calamity spoiled the garden. For my own credit I worked often much too hard, sometimes nearly breaking down, as I was left practically "Single-handed." Only by very hard labour could the place be kept well, and anything short of "well" is a misery to me. We have a small collection of Orchids, which I would be proud to place alongside of any other their own age in the country; also a useful collection of Ferns and stove and greenhouse plants. I have raised several hybrid Cypripediums and Dracænas, and other plants. Potatoes I have raised in hundreds, and have some good seedlings, also superior strains of different vegetables. Hardy Primulas and Auriculas I have sought to improve, and for everyday wear and tear commend me to good strains even of florists' flowers from seed instead of from cuttings. Only the hardier fruits thrive here, we are so exposed; but I would like to match the Grapes I grow for quantity and quality against the best and the heaviest crop ever seen.

During all the years I have unwaveringly sought to acquire knowledge, and have studied all sorts of books. I have a passion for the study of animal and vegetable physiology and organic chemistry, and with poetry I am entranced and general literature. In six years I have bought fully £45 worth of books, mostly gardening, but science generally as well. I possess or have read most of Darwin's works, Burbidge's, Johnston's, Church's, and others too numerous to mention. This off 27s. a week; but I have gained some prize money at shows, and Mr. Thomson's and your own kindness in placing me on your staffs has helped much. A little money gained thus is of much assistance to one who is endeavouring hard—

"To grasp the skirts of happy chance,
And battle with his evil star."

I have sometimes, when fate has seemed against me, felt cast down, but have never once "abated one jot of heart or hope;" but when failing to gain "reinforcement from hope" have taken "resolution from despair."

Till lately I have not endeavoured to gain another situation, hoping that things here would improve. My master is very kind, and we are on the best of terms; but under the present circumstances I think I should not slave hopelessly on, and, though it will be a trial to leave my work behind to begin afresh, I have made up my mind to do so. I should very much like to try my fortune further south in a better climate. To my calling I am devoted, and I ought to be well qualified to fill most situations. In fact, though that is "blowing my horn," the birthright of "every Scotchman born," I think not many have given greater amount of study to their profession.

I do not know whether it will count for much in England, but I am a ten-year-old total abstainer, and a life anti-tobacconist. My connection with teetotal societies has been of benefit, besides that derived from temperance, for I have been trotted out as essayist and lecturer at all sorts of times and occasions. In this I hope I have done good, though it does not bear on gardening.

Such are the outlines of my career hitherto—a career only fairly begun I hope, as I am but thirty. They are the merest outlines, but more is scarcely necessary, as you have some chance of judging details from what I write otherwise. Before closing I ought to thank you for the interest you have shown in me, and to assure you that while life lasts I shall never fail to feel grateful for your kindness; and should you ever favour me with a visit I shall reckon it a great honour.—ALEXANDER HONEYMAN.

Shortly after receiving that letter we had the opportunity of visiting Mr. Honeyman and inspecting the garden in his charge. The wonderful crop of fine Grapes, vigorously grown Orchids, and other plants under glass, with the superior condition of the outdoor crops, afforded ample evidence of masterly care, and of hard labour also on the part of the cultivator. It was this too-hard work that it is to be feared led to the illness that followed, and which was expected to terminate fatally at the time. The best treatment in the Royal Infirmary, Edinburgh, however, led to steady improvement, which it was thought and hoped would end in complete recovery. As Mr. Honeyman had decided to relinquish his charge, he resigned his situation during the early period of his illness, not deeming it right under the circumstances to receive wages when ill from a kind employer whom he intended leaving when well. He was not friendless during the long period of his convalescence, nor was he indulgent then. So much in earnest, and with a burning desire to impart and acquire knowledge, he could scarcely take the needed rest. When he could not lift the spade he could wield the pen, and we should not be surprised to learn that many of his best articles were written on a bed of sickness.

In October last, having regained much of his lost strength, he had a choice of situations, and decided to undertake a charge at Brighton, where, without having to engage in hard manual labour, scope for the exercise of his abilities would have been afforded him both in Grape-growing and ornamental gardening, while the recognised salubrity of the climate was not overlooked. As has been previously stated, after inspecting the estate that was placed in his keeping and estimating its resources he requested to be suspended for a short time, long and exhausting journeys having rendered, as he felt, a little rest needful. The sad result we know. After many weeks of suffering he died. He had looked forward confidently to success in his charge, and could see a wide field of usefulness before him, but eventually, and for some weeks prior to the end, resigned himself composedly and even cheerfully to the last sum-

mons, his one regret being, as he has stated, the helpless condition of his family. Though in a strange place it is gratifying to know that kind friends ministered to his wants, Mr. Coxed the Secretary of the estate, with his wife, and Mr. Amory the Clerk of the Works, having been untiring in their attentions by day and night, and their names are recorded here in appreciation of their valued services; his employers, too, we are glad to be able to state, kindly and considerably defrayed the expenses of the funeral. The remains of Mr. Honeyman were interred on Thursday last in a befitting manner, the coffin being covered with flowers—beautiful wreaths, crosses, baskets, and bouquets, the offerings of friends from far and near, and was lowered into the grave, in accordance with tender Scottish sentiment, by friendly, not hired hands.

Testimony of the appreciation in which our coadjutor was held is so

aware of is so advanced and so sound as was the subject of this notice. His writings have been closely examined by the highest authorities, and the author of them won the respect of the most learned, while he enjoyed to a remarkable extent the confidence of all students of garden literature. He was a writer in "Chambers' Journal," which is sufficient evidence of his literary ability; and just before his death he received an award of £3 3s. for the second-prize essay on "The Value of Rye Grass as a Herbage and Forage Plant, and its Suitability or otherwise for Sowing by itself or along with other Grasses and Clovers for Cutting and Grazing Purposes," offered by the Scottish Seed and Nursery Trade Association.

The measure of Mr. Honeyman's ability as a writer cannot, however, be adequately determined by what has been published. The MSS he



Fig. 29.—MR. ALEXANDER HONEYMAN.

voluminous that we cannot even cite in the briefest manner from the letters, all of which will be sent to Mrs. Honeyman. One, as typical of the whole, we insert, selecting it because the writer of it has the honour of first introducing Mr. Honeyman to the public as a teacher in scientific and practical horticulture.

"I am sure," writes Mr. D. Thomson, "your readers and all who knew Mr. Honeyman will much regret his loss and sympathise with his widow and children. It has been my happiness to be connected with him as a horticultural writer for 'The Gardener' for many years, and I always considered him the most advanced student in chemistry as applied to horticulture of any practical gardener of the present time, and it is to be regretted that he has been called hence at a time when greater opportunities of practice seemed within his reach."

Unreservedly do we concur in the above estimate. Not a few gardeners have considerable scientific attainments, but not one that we are

has left behind show the remarkable character of the man. Essays on almost every conceivable social and educational subject of current interest we have the mournful pleasure of inspecting; and he also found pleasure, as a relief from heavier subjects, in the composition of poetry. These manuscripts reflect alike the cultured mind and the extraordinary industry of one whom, as a gardener, one of the best of gardeners has remarked of him, "we shall not soon look upon his like again."

SHOW AND FANCY PELARGONIUMS.

It is a matter of opinion whether spring-struck one-year-old plants or old cut-back specimens of the Pelargonium are preferable. Young plants have many points in their favour, as they strike early and late; and by regulating their pinching and potting can be had in bloom from early spring until autumn. This can be also done with old cut-back plants

but not to the same advantage, neither is their foliage so good in appearance. Nevertheless, plants one year old cannot be grown to the size of old cut-backs, especially those of twenty or thirty years standing, neither are they so floriferous, and they require much more attention. Still, for conservatory work, with large staging and beds, I would grow both the old plants for the back rows and the others for the front.

When the flowering period of old plants is over stand them on a bed of ashes, fully exposed to sun and wind, to mature their wood. Give them little or no water, and should there be heavy rains lay them on their sides. Cut them back in August or September, and cut the old prunings to 2 or 3 inches long, and insert them after the manner of Rose cuttings, only in a frame instead of outside. Stand the plants in a cold frame, and as they become dry sprinkle them with a rose. When they have made an inch or two of growth shake them out, shorten the longest roots, and repot in a smaller size. Shake the plants when putting in the soil to cause it to settle amongst the roots. Many plants are ruined by omitting this process and allowing the roots to be massed in the centre. The compost should consist of two parts of good yellow fibry loam, half part well-decayed cow dung, half part leaf soil, and sufficient silver sand to make it porous. When potted place them in a good dry cold frame near to the glass. Water very sparingly, and with a rose. Do not damp the foliage. Close the lights, only give sufficient air to keep a dry atmosphere. In October the plants should be removed to a stage in a greenhouse or earlyinery, as if left out too long they will become affected with the spot, and many of the weaker varieties will be seriously injured, and some killed. Ventilation should be given at this period of the year to keep them robust.

To have them in flower early the most forward should be potted into their largest pots by the end of October, and for a succession of batches a fortnight later than the preceding one. If possible all should be in their largest pots by the end of November. Those that are left over should be potted in February and March, which time those potted in the autumn and encouraged to make all the growth possible and rested during December and January, can be receiving a liberal supply of liquid manure, that from the stable pump preferred, one pint to three of clear water, and syringe twice a day till the blooms open. To show old cut-backs to advantage every shoot should be staked. Hazel twigs are the best adapted to this purpose, or where they are scarce prunings from Pear and Apple trees will be plentiful, and are very good.

Cuttings for making one-year-old plants should be inserted in February, March, and April in a finely sifted compost of loam, leaf soil, and sand. When rooted pot them, and as the summer advances transfer them to a good light frame. They will require about two shifts, the same compost being used as before. Pay great attention to the pinching to get plenty of breaks, and a little liquid manure may be given.

The presence of green fly will be most injurious to them, and should be kept down by slight fumigating. Syringe twice a day, and close early, even if it is necessary to again open the ventilators and leave them open all night. Transfer the plants to the house with the old cut-backs, and treat them the same, except in the pinching, which must be regulated to induce them to flower late.—A FOREMAN.

RUBUS ROSÆFOLIUS CORONARIUS.

THIS is a free-growing and free-flowering plant of the easiest culture. Its growths are erect, but as there is a difference in the length of the shoots that spring each year from the base or stool it forms a compact plant of somewhat rounded pyramidal shape, and well furnished with growths to the base. The foliage is ample, and as fresh growths accompany the flowers it is attractive from its lively green colour, the old leaves having become somewhat sere ere the flowers are produced. It flowers from the points of the shoots, and every axil of the leaves on the stem down to very near the base pushes a growth, which is terminated by a flower, the plant when well grown being close-jointed. The flowers are elegantly formed, pure white and double, but with a notable eye, yet not detracting from its decorative value, and are about 2 inches across. It flowers more or less throughout the year, but is at its best during the early spring months when in a greenhouse. It can, however, be readily forced, and may be had in flower from early winter by having relays of plants introduced at intervals. Altogether it is a very elegant plant for the greenhouse, having the aspect of a small-growing Bramble with leaves similar to a Rose.

It may be grown and flowered in 6-inch pots if well fed with liquid manure during the season of growth; but to see it in character it requires more root room, the size of the pots being as a matter of course regulated according to the size of the root-formation, as, for instance, a plant that flowered this year in a 6-inch pot will need a pot 3 or 4 inches larger in the next, and so on each year until very fine specimens can be had in the second and third year, when they are as large as need be for ordinary purposes, and by reducing the ball at potting time the plants can be kept in the same size pot for any length of time. Its growths are annual—made one season and flower the next, so that the old shoots should be cut out after the plant has flowered, not being in too great a hurry, however, as there is reason to believe that the old growths feed the young ones that spring from the base for at least a time.

The best time to repot this plant is as soon as the flowering is

over and young growths are appearing. The old soil should be picked from the sides of the ball, reducing it somewhat, but not to a greater extent than a third, returning the plant to the same size of pot or a little larger, and when it has rooted freely transfer to the flowering pot; or instead of this it may be well fed when in free growth. Good turfy loam, with a fifth of old thoroughly decayed manure and a little sand will grow it well, good drainage being given, as it is a plant that requires copious supplies of water. No stopping, training, staking, or tying is necessary. It is a native of the Himalayas, Burmah, &c., and though not new was but little known until brought out by Messrs. Veitch. As a decorative plant and for cutting from it deserves extended culture. Propagation is effected by suckers or cuttings of the shoots that spring from the base after they become a little firm.—G. ABBEY.

HARDY PLANTS AND THEIR SYNONYMS.

I QUITE agree with "Specialist" that great confusion exists regarding the names of hardy plants, and if some of the correspondents of the Journal would give a few names of plants occasionally with their more popular synonyms, such, I am sure, would be greatly welcomed by many a reader of the Journal, which I am pleased to see is giving us so much useful information on hardy herbaceous plants. Great advantages accrue from being made familiar with the synonyms of plants, as it very often prevents us making unnecessary purchases, and subsequent disappointment. Suppose I make a speciality of Phloxes. *P. reptans*, like many others, does well with me, and the fact of this is great inducement to add other species to my already good and flourishing collection. In looking over my catalogues I meet with the name of one apparently new to me—namely, *Phlox stolonifera*. I purchase a plant, which on its arrival proves, to my great surprise, identical with my *P. reptans*. These unlooked-for disappointments can best be diminished by making ourselves better acquainted with plant nomenclature, and much credit is due to "Specialist" for so boldly setting us the example. I will volunteer my mite towards supplementing the list given by him, but before doing so allow me to draw attention to a few errors in "Specialist's" list. For instance, how can *Achillea serrata* be confounded with *Achillea Ptarmica*, or *Campanula lamifolia* with *C. alliariaefolia*? I regard them as species very remote from each other. *Androsace septentrionalis* we must regard as a well-marked species very distinct from *A. lactiflora*, which latter is synonymous with *A. coronopifolia* (Andr.), the name generally kept up, and under which it is figured and described in the "Botanical Magazine."—PRACTICAL.

I HAVE read with much interest the articles on "Synonyms of Hardy Plants" in your valuable Journal, and I remarked in your last number that your correspondent finds *Campanula fragilis alba* a difficult plant to grow. I have a starry white *Campanula*, purchased under the name of *C. isophylla alba*, which, if not the same, is extremely similar to *C. fragilis alba*, and a most valuable plant for hanging baskets in a conservatory. I find it increase freely in a damp place out of doors, and the main stock will do well grown so and potted as required.—L. B.

ELECTION OF CARNATIONS AND PICOTEEES.

THE ELECTORS' RETURNS.

[The names of the raisers of the varieties in the following lists have been given in the previous returns.]

From Mr. GEORGE GEGGIE, Bury.

Scarlet Bizarres.

Admiral Curzon
Mercury
Arthur Medhurst
Fred
Alfred Hudson
Robert Lord

Crimson Bizarres.

Master Fred
J. D. Hextall
Rifeman
Lord Milton
Lord Raglan
John Simonite

Pink and Purple Bizarres.

Eccentric Jack
William Skirving
Sarah Payne
Falconbridge
James Taylor
Squire Penson

Purple Flakes.

Dr. Foster
James Douglas
Florence Nightingale
Earl of Milton
Earl of Stamford
Juno

Scarlet Flakes.

Sportsman
Clipper
James Cheetham
John Ball
Ivanhoe
Scarlet Keet

Rose Flakes.

John Keet
James Merryweather
Mrs. Dodwell
Sybil
Tim Bobbin
Cristigala

PICOTEEES.

Heavy Purple-edged.

Zerlina
Alliance
Muriel
Mrs. A. Chancellor
Tinnic
Mrs. Rivers

Light Purple-edged.

Ann Lord
Minnie
Clara Penson
Mary
Nymph
Baroness Burdett Coutts

PICOTEEES (continued).

Heavy Red-edged.
John Smith
Morna
Brunette
Master Norman
J. B. Bryant
Picturata

Light Red-edged.
Thomas William
F. D. Horner
Violet Douglas
Mrs. Gorton
Elsie Grace
Mrs. Bower

Heavy Rose or Scarlet-edged.
Miss Horner
Mrs. Payne
Fanny Helen
Edith Dombtrain
Royal Visit
Mrs. Lord

Light Rose or Scarlet-edged.
Mrs. Alcroft
Miss Wood
Evelyn
Mrs. Nicholl
Victoria
Edith

From Mr. ROBERT LORD, Hole Bottom, Todmorden.

CARNATIONS.

Scarlet Bizarres.
Admiral Curzon
Robert Lord
Edward Adams
George
Fred
Mercury

Crimson Bizarres.
Master Fred
J. D. Hextall
E. S. Dodwell
John Simonite
Thomas Moore
Graceless Tom

Pink and Purple Bizarres.
Mrs. Anstiss
William Skirving
Unexpected
Falconbridge
Sarah Payne
H. K. Maylor

Purple Flakes.
Dr. Foster
Squire Whitbourne
James Douglas
Earl of Wilton
President
Florence Nightingale

Scarlet Flakes.
Sportsman
Henry Cannell
Annihilator
John Ball
Clipper
James Cheetham

Rose Flakes.
Mrs. Dodwell
John Keet
Tim Bobbin
Electric Light
Rob Roy
Jessica

PICOTEEES.

Heavy Red-edged.
John Smith
Morna
Dr. Epps
Brunette
Master Norman
Picturata

Light Red-edged.
Thomas William
Elsie Grace
Mrs. Gorton
Sarah Elizabeth
Violet Douglas

Heavy Purple-edged.
Zerlina
Muriel
Mrs. Summers
Mrs. A. Chancellor
Tinnie
Alliance

Light Purple-edged.
Minnie
Ann Lord
Clara Penson
Her Majesty
Mary
Nymph

Heavy Rose-edged.
Miss Horner
Mrs. Payne
Esther Minnie
Mrs. Lord
Constance Heron
Mrs. Rudd

Light Rose-edged.
Mrs. Alcroft
L'Elegant
Miss Wood
Miss Flowdy
Mrs. Nichol

From Mr. B. SIMONITE, Rough Bank, Sheffield.

CARNATIONS.

Scarlet Bizarres.
Admiral Curzon
Arthur Medhurst
Robert Lord
George
Fred
Edward Adams

Crimson Bizarres.
J. D. Hextall
Master Fred
John Simonite
Eccentric Jack
Rifeman
Harrison Weir

Pink and Purple Bizarres.
Sarah Payne
Falconbridge
James Taylor
Mrs. Gorton
Unexpected

Scarlet Flakes.
Sportsman
Clipper
Dan Godfrey
Annihilator
James Cheetham
John Ball

Purple Flakes.
James Douglas
Dr. Foster
Squire Meynell
Florence Nightingale
Earl of Stamford
Mayor of Nottingham

Rose Flakes.
Sybil
Jessica
John Keet
James Mcryweather
Cristagalli
Mrs. Dodwell

PICOTEEES.

Heavy Purple-edged.
Mrs. A. Chancellor
Zerlina
Muriel
Mrs. Niven
Mrs. Summers
Alliance

Light Purple-edged.
Clara Penson
Her Majesty
Mary
Ann Lord
Minnie
Nymph

Heavy Red-edged.
John Smith
J. B. Bryant
Princess of Wales
Brunette
Mrs. Dodwell
Dr. Epps

Light Red-edged.
Mrs. Gorton
Thomas William
Violet Douglas
Mrs. Bower
Clara
Elsie Grace

PICOTEEES (continued).

Heavy Rose-edged.
Fanny Helen
Lady Louisa
Mrs. Payne
Lady Holmesdale
Edith Dombtrain
Miss Horner

Light Rose-edged.
Miss Wood
Mrs. Alcroft
Teresa
Ethel

THE VINE.

THERE is no subject among those which engross the gardener's attention of more importance than the cultivation of the Vine. No garden appears fully furnished without its vinery for its cultivation, and no table, however loaded with dessert, is perfect without the all-important Grape.

No one can fix the country where the Vine is indigenous, but the history of all nations prove that it has been one of the earliest cultivated fruits, and that is not surprising, seeing that it is one of the most delicious in its fresh state, and makes a very good dessert when it is dried, while the different kinds of wine manufactured from its juices prove it to be the ne plus ultra of fruits in excellence and variety of uses, and there are thousands of witnesses who can testify to its value in the sick chamber.

The propagation of this queen of fruits is effected by means of seeds cuttings, layers, and grafts. Propagation by seeds is mainly with a view to obtaining new varieties, which is done by crossing different varieties which have been obtained previously by that means or by accident. The seeds should be sown early in February in pans of light rich loam mixed with a little leaf soil. The pans should be placed in bottom heat, and the seedlings potted as soon as necessary, plunging them in bottom heat, and keeping them there through the growing period with plenty of light and ventilation when they require it, and under favourable circumstances they will bear fruit in three or four years.

Propagation by cuttings is effected by taking pieces of well-ripened wood 9 or 10 inches long, or by single eyes, which is preferable, and the mode most approved of by all good cultivators affording better rooted plants and strong short-jointed and well-ripened wood. The eyes are best that are taken from the strong healthy Vines, cutting them, say, an inch above and an inch below the eye, making the cutting 2 inches long. They should be inserted singly in pots 4 or 5 inches in diameter in good rich mellow loam, well drained, and the buds placed in about an inch in depth; the pots must then be plunged in bottom heat of from 70° to 80°, and an air temperature of from 60° to 70°. The cuttings should be shifted when they attain the height of 7 or 8 inches into 7 or 8-inch pots, and again plunged. The best compost to put them in is good fibry loam, with a small quantity of leaf soil and manure, and a piece of charcoal and sand added to it, taking care that the pots are well drained, and if the roots appear above the surface of the soil the plants may be placed in 12-inch pots. Propagation by layers is very little resorted to now, and I think that cuttings or eyes are very much superior.

Propagation by grafting is seldom employed, except for the purpose of superseding a sort that is not required by one it is wished to have in its place, and to fruit quickly; also if it is desired to test a new promising variety it can be sooner done by grafting. Vines may be successfully cultivated in the south against walls. The soil should be well drained; a mellow sandy loam is the best, but an ordinary friable soil will answer, provided it is well drained, but seeing that glass is so cheap there is much more inducement to cultivate them under glass than formerly.

Vines grown under glass should have their borders made very carefully and one of the most essential things is to have the borders well drained. The border should have a bottom of from 6 to 12 inches of rubble or brickbats, with a good outlet, and for a drain for the water, upon that a layer of turf should be placed, then a compost may be made of the following proportions:—One-half of good fibry loam or turf rather sandy, a fourth part of good coarse manure, and a fourth part of coarse bone manure, rough or lumpy charcoal, and old lime or plaster from buildings. This should be well mixed and a layer of about 18 inches placed on the top of the turf, then the roots of the Vines should be laid carefully on this, and a layer of 6 inches placed over the roots. The border made be made from 12 to 20 feet wide, according to circumstances, but some make the borders narrow, and after the Vines have been growing for two or three years add another width to it. The above directions will apply to those grown in a stove, with the exception that the border should always be inside, so that the temperature of the roots and branches may be as uniform as possible.

Planting.—Vines are best planted just before the buds commence swelling, but some recommend that they should be grown for a few inches before planting; but this only applies to those that are in pots, as it would be against reason to do so with those that are to be taken up and transplanted. In planting care should be taken that the roots are not injured in the operation, and if the roots are unavoidably injured, as is often the case in shifting good-sized Vines, the roots so injured should be pruned with a sharp knife to avoid any canker that might ensue.

Pruning and Training.—Vines bear their fruit on wood made in the current year. There are three systems of pruning and training Vines—viz., the long-rod short-rod, and spur; but whichever system is adopted, the chief consideration should be to get the greatest amount of foliage exposed to the light, as overcrowding is detrimental to the ripening of the wood and fruit.

Long Rod System.—Larger bunches, it is admitted, are produced by the long-rod system, but a larger quantity and greater weight are produced by the spur system. The Vines should be planted about 4 feet apart for general purposes, and after the Vine has grown one season it should be pruned back to the bottom of the rafters. The following season two of

the best shoots should be trained, and when they have completed their growth cut one of them back to two eyes, and the other should be pruned to a convenient length for producing fruit; while the other, which was cut back to two eyes, will produce two shoots that will have to be pruned in the same way—that is, one of them left and the other cut back to two eyes again. There will thus be a succession of fruit-bearing wood, while the shoot that has borne the fruit the preceding season should be cut out. If, however, the Vines are wanted to cover more space, they must be trained so that there shall be two or more sets to bear fruit like the above.

The Short Rod System.—This is on the same principle, but buds should be selected alternately from each side of the shoot. The others being removed from between the chosen buds, they should be disbudded when the wood is nearly ripe. The buds that are left generally bear the following season. The shoots produced from the buds that are left are stopped in summer to one eye beyond the fruit, and in autumn are pruned to two eyes. One of the shoots produced from the two eyes is allowed to bear fruit while the other is not. In autumn again the shoot which bore fruit is pruned to one eye, while the other is pruned to three or four eyes, so that there may be a strong bud left at the end to produce the fruit next season. The other buds, with the exception of that at the base, are taken off; two buds left, one at the apex and the other at the base, one to bear fruit and the other to form the succession shoot the following season, while the bud left on the base of the other shoot forms the fruit-bearing wood for the season after.

The Spur System.—Spurring has become the general way of pruning Vines. They should be planted so that each Vine is grown in the centre of a sash or light, for if they are planted as they often are and trained up a rafter, they will not get the light they require. Great care should be taken in pruning Vines in this way (namely, to two or three eyes) to get their shoots to push alternately by the removal of every other bud, and two might very safely be removed in very short-jointed wood. As soon as the young shoots have pushed so that they can be tied in, they should be stopped at one joint beyond the bunch just showing, or where there is plenty of room they may be stopped at two joints beyond the fruit, but a gardener in this case, as well as many others, must use his own discretion. After this laterals will push, and these should be stopped above their first joints, and so on through the entire season.

Thinning.—When a Vine has more bunches than it is thought can be perfected—and here a gardener has to use his judgment—they should be thinned, care being taken that the worst bunches are taken off, and that the bunches left are at regular distances apart. There is no prettier sight than a house hung with ripe bunches, as if the distances had been measured. The sooner those that have to be sacrificed for the good of the others are taken the better—that is, as soon as it can be seen what the bunches are going to make. If a gardener is greedy he is deservedly punished by the unsatisfactory results that follow. The berries should be thinned as soon as they attain the size of small peas, care being taken that those nearest the centre of the bunch are taken first. In thinning a bunch the operation should be commenced at the end, working upwards towards the top of the bunch. Some bunches are cone-shaped, while others form very distinct shoulders; these should be tied up, taking out all the berries that might become overcrowded, and in all cases care should be taken not to touch the bunches with the head or hands. The bunches should be examined again in a short time, and those berries that show the least signs of being overcrowded should be taken out, and the old maxim of quality before quantity should be the guide.

Temperature.—Vines should be started with a temperature of from 40° to 45° at night and about 50° by day, increasing to 60° with sun heat, the heat being gradually increased (while the buds are swelling till they are in leaf) up to 55° at night and from 65° to 70° by day up to 75° with sun heat. When the Vines are flowering the temperature may be increased to 65° at night, 70° by day, and 80° with sun heat. Muscats require a rather higher temperature—say 70° at night and 80° to 85° by day. Great care must be taken in regulating the temperature of vineries that there is not a sudden influx of cold air. Ventilation should be given to keep the house at such a temperature rather than to lower it when it has become too high by neglect; but practice alone makes a man perfect in ventilation, as in all other things.

Diseases.—Shrivelling is a disease that is owing to the roots of the Vine not supplying a sufficiency of sap, which is caused by their being in too low a temperature. This often occurs in stoves where the Vines have their roots in an outside border, the temperature of the border being considerably less than that inside; or it may be caused by the roots getting into some substance that does not suit them, and if their roots were examined it would be found that the fibre was very much discoloured, and in some instances quite decayed. We sometimes find bunches that have from three to ten berries quite colourless and sour, while the others have both colour, and this is also caused by the great difference in the temperature of the roots and the Vine.

Shanking is also caused by the same mismanagement—indeed, most of the diseases that the bunch is subject to is caused by the carelessness or mismanagement of the gardener, or in some instances ignorance.

Rust is supposed to be caused by overheating the vinery, and then as suddenly reducing it, which should by all means be avoided.

Spot on Grapes is caused by changes of temperature, irregular watering, and growing the Vines in too low a temperature. This disease often occurs in the case of Muscats, which proves that it must generally be caused by too low a temperature, seeing that the Muscat is most likely to suffer from want of heat. Want of colour is caused by the Vine having too heavy a crop or having an insufficiency of foliage to elaborate the sap, or it may be caused by the bunches being too much exposed to the solar

rays, and becoming by that means partly burnt in order to secure the good colouring of Grapes. Care should be taken not to hurry the ripening process, as we often see perfectly coloured Grapes grown without any artificial heat at all in the north of England with the simple protection of glass, and then often subject to ventilation both night and day, and in the south those grown against walls are often a beautiful colour.

Mildew is a disease that often attacks Vines, but which can be checked by the application of sulphur in the form of vapour, also by mixing it with the paint that is used to paint them with in their dormant state.

Insect Pests.—Red spider is one of the pests that often infest Vines that can be destroyed by the application of sulphur in the form of vapour. Also the frequent use of the syringe is beneficial in checking it, as a hot dry atmosphere is favourable to its increase. Thrip is another pest that infests the Vine, but a good fumigating occasionally will effectually keep it in check.

Scale and mealy bug sometimes attack the Vine. When this is the case cleaning off all the loose bark and washing them in warm water mixed with soft soap is a good cure; also washing the walls or painting them with a mixture of lime, sulphur, and tobacco juice. If the vineries were kept clean and frequent syringing there would be less to contend with than is often the case.

Bleeding of the Vine is caused by the Vines being pruned after the sap has commenced rising. This can be avoided by pruning them as soon as the leaves have fallen; but if by chance they should be left too long and they bleed at all, that portion might be seared with a red-hot iron, or the end might be thrust into an entire potato, which is as good a preventive as I know.

Varieties of Vines.—The following are a few of the best varieties for a greenhouse or vinery:—Black Hamburg, Black Prince, Lady Downe's, West's St. Peter's, Royal Muscadine, Dutch Sweetwater, Trentham Black, Gros Guillaume. For the stove the following are very good:—Muscat of Alexandria, Canon Hall Muscat, Black Hamburg, Bowood Muscat, Muscat Hamburg, and Gros Guillaume. The above are varieties that have been grown by myself, and for general purposes are among the best varieties that can be cultivated.

No man now ought to be long ignorant of any subject in gardening, seeing there are so many valuable works and periodicals on the subject that he may want information on, and if he begrudges the few shillings or pence that these works cost he cannot have that interest in gardening that he ought to have, and which is indispensable in the making of a good gardener—JAMES INMAN, *Chapel Ailerton*.

[The second prize paper read at the Leeds Gardeners' meeting.]

PASSIFLORA EDULIS.

To the request of a Kentish correspondent ("Super"), who desires to know "all about *Passiflora edulis*, its culture, and its uses," we cite the following from a previous issue, as such a comprehensive question cannot be answered satisfactorily either to our correspondent or others in the form of a brief reply in the column devoted to inquiries.

THIS is an interesting species of an extensive and beautiful family of climbing plants. Most of them require a stove temperature to bring them to perfection, although *P. carulea* and its varieties will flourish on a south wall in the open air in the southern counties. But *P. edulis* while being a native of India will still succeed in a lower temperature than many of its allies—that is, it will cover a roof and flower freely in a warm conservatory, yet to perfect its fruit it requires, and is worthy of, stove temperature. Its flowers are not nearly so beautiful as those of some other varieties, but its handsome plum-like fruits, which are so easily and freely produced, add an interest to the plant to which its more gay compeers can have no claim. The fruit, besides being decidedly ornamental, has a flavour which is particularly agreeable to some palates; and where such is the case, and means are provided, it is specially grown for dessert purposes. In the gardens of Drumlanrig Castle a house is solely devoted to the culture of this fruit, and large crops are produced. The fruit has a pleasant aroma, is cooling, and has a refreshing subacid taste, and is particularly adapted for allaying thirst in the tropical countries to which it is indigenous.

As an ornamental roof-covering plant it is to be feared that *P. edulis* has frequently given place to less worthy objects. It is not easy to find a plant more beautiful than this with its elegant pendant shoots laden with flowers and fruit, which hang with an airy gracefulness from the roof of a suitable glass structure. The plant is, moreover, of very easy culture. It should be raised from cuttings in preference to seed. Seedling plants grow freely enough, and soon cover a large space, but they are sparse in blooming compared with plants which have been struck from cuttings. Short-jointed young shoots strike quite easily any time during the summer if put in sand under a bellglass, and attended to by the requisite amount of heat, shade, and moisture.

A suitable compost for established plants is turfy loam two-thirds, the remainder leaf mould, peat, and old decayed cowdung, this to be liberally mixed with sand and broken charcoal. Although the plants require an abundant supply of water during the summer season any approach to stagnancy is pernicious, and consequently the drainage must be very complete. It is well, too, in potting to place some crocks or rubble round the neck of the plant, as it is apt to canker and decay at the surface of the soil; but to grow it well it should be planted out. Corners of bark pits, walled-off from the bottom, form fitting receptacles in which to plant. In these, with due attention, plants will flourish for many years. In the summer season a free use of the syringe is necessary, as a dry atmosphere, and especially if dry at the roots, if only occa-

sionally, at the same time, will certainly invite a crop of red spider. Syringing must be less frequent pending the setting of the fruit, which is aided by each bloom being artificially fertilised with its own pollen. On this point the same treatment that is given to Vines is applicable.

In the winter the roots must be kept somewhat dry, yet even then the soil must always be perceptibly moist. A minimum winter temperature of 45° is safe, and a plant that has been preserved for some years at a lower temperature than this, but it is not advisable.

In training, a vital point is to guard against overcrowding. If the young shoots are suffered to cling together and become interlaced, the plant will lose vigour and only produce useless spray. The aim should be to have the young growth thinly disposed, so that each shoot can have the benefit of light and air and become matured. It is only by this means that fruit can be expected. Spring is the best time for pruning, just when the plant is commencing to grow. The shoots can then be thinned out and shortened, so as to cover the space required. Taking out



Fig. 30.—*Passiflora edulis*.

old wood by degrees and laying-in young is the necessary mode of prolonging the vigour of the plant, and to preserve it in a flowering and fruiting state for many years.—W.

HOLLIES.—The salt winds have been blamed for defoliating Hollies all over England, caused by the December storm. I think a little more information is desirable. I would suggest that the salt had nothing to do with the leaves falling, but that the terrible force of the wind ruptured the leafstalks, and the active state of the roots assisted by the open and mild winter caused the old leaves to fall and give place to a new growth.—J. E. WAITING, *Grange-over-Sands*.



HARDY FRUIT GARDEN.

Arrears of Work.—Buds of Nectarines, Peaches, and Apricots are becoming very prominent; many Pear buds have swollen almost to bursting, some of the Gooseberry bushes are dangerously forward; it is high time, therefore, that winter work should be finished. In well-managed fruit gardens the pruning is all done excepting amongst the Filberts and Nuts, which will quickly follow, for the pink brush-like female flowers are fast opening, and many of the catkins, or male blossoms, have some pollen, and when this becomes so plentiful that the

fertilisation of the female blossom is a certainty pruning may be done. Planting is over; all newly planted trees are securely fastened to wall, espalier, or stake, are labelled, and mulched with manure. The entire plantation of Gooseberries, Currants, Raspberries, and Blackberries has had a thick surface dressing of old hotbed manure, the nailing and tying of wall trees and espaliers is done, wood for grafting old exhausted trees or inferior sorts has been thrust well into the soil at the foot of a north wall, screens, netting, and mats, are at hand for the protection of the blossom, and all is in readiness for the coming of spring. We thus briefly enumerate the chief details of our winter work as a reminder to all still having arrears on hand to delay no longer the finishing of work that cannot be put off without considerable risk of harm to the trees.

Our last planting was several rows of Red Warrington Gooseberry which we find one of the most useful sorts of this popular fruit. It invariably crops well, the green fruit is ready for picking early, the ripe fruit keeps good later than almost any other sort, it makes delicious rich-flavoured jam, and is one of our best dessert fruits. Its growth is sturdy and free, and the bushes continue healthy and in full bearing for many years; some planted thirteen years ago still show no signs of debility or decay. Fruit-growers for market find a plantation of this hardy prolific Gooseberry a profitable investment. The bushes are 5 feet apart, with a row of Strawberries between them for three or four years, especial care being taken when the Strawberry plants are destroyed to thoroughly enrich the soil they have grown in with manure for the benefit of the Gooseberries.

The Fruit Book.—Every fruit tree planted should have its name entered in the fruit book, and sufficient space left for subsequent entries of importance, such as when it first has fruit, freedom from or tendency to disease, root-pruning and its effects, an annual note of its condition and crop, the quality, size, and season of its fruit, and any special method of treatment, so as to gradually accumulate a fund of useful knowledge that cannot be obtained in any other way, for many of our best sorts of fruit are so much affected by local peculiarities of soil and climate that it is hardly possible to say if they will answer without actual trial. By keeping such a book for several years we are now able to plant with certainty, and to assist many of our neighbours who are planting in the selection of the best sorts of fruit for our locality.

FRUIT FORCING.

FIGS.—*Early Pot Trees.*—Continue the treatment advised in the last calendar, guarding against the evils which usually attend a high temperature, especially at night, until the days are longer and brighter, when by judicious treatment in early closing with plenty of sun heat and moisture anything now apparently lost will be regained by the increased vigour of the trees and rapid advancement of the fruit. Attend regularly to the wants of the roots, and guard against a check from an insufficiency of water by giving copious supplies of tepid liquid as frequently as may be considered necessary. In the case of old-established plants the rapid increase of the fleshy roots filling the space left for water, a rim of zinc or lead about 4 inches deep may be placed round the inside of the pots for the reception of rich mulching, and to prevent the escape of water when supplied in sufficient quantity, as it should be to penetrate the ball. Syringe twice a day in fine weather, and moisten the paths, bed, and walls only in dull weather or when the drying of the foliage before night-fall is doubtful. Stop gross shoots, a few at a time, following the extension system where space admits, removing a few of the badly placed fruits if thickly set.

Succession Houses.—Repeat the treatment described for early trees. Let the temperature range from 55° to 60° at night. Mulch and water freely as a means of keeping the roots near the surface, and so maintaining the fertility of the trees. There is a difference in the prolificness of the varieties, some being more so than others, but all succeed best under prescribed root space in good loam of a calcareous nature resting on clear drainage through which water can pass freely. Red spider is the most troublesome enemy of the Fig, and unless provision is made for the free use of water, keeping the tree clean and healthy is impossible.

Late Houses.—Complete the pruning of the trees in the latest houses. The shoots should be all thinned and laid in over a trellis 16 to 18 inches from the glass. When the bearing wood reaches the extremity of the trellis it should be cut away to make room for the most promising successional shoots, which produce an abundance of young fruit on ripe wood ready for development in the spring, and instead of keeping the autumn growths closely tied down they should be allowed to draw up to the glass to receive the full influence of the sun.

Cucumbers.—The weather so far has been very favourable for forcing. Continue to tie down the young growth, and thin out all superfluous shoots and badly formed fruits, syringing the plants in the afternoon of fine days, and keep the evaporation troughs filled with liquid manure, the ammonia from this being healthful to the plants and inimical to insect life. The bottom heat should be kept steady at between 80° and 90°, and liberal supplies of tepid liquid manure given whenever the plants require it.

Young plants must be well attended to, affording a minimum temperature of 70°, admitting a little air at 75°, keeping it through the day at 80° to 85°, closing at 85°, and then run up to 90°. Attend to the linings of dung-heated frames, which as soon as the heat begins to decline should be removed, and fresh sweetened material supplied from the reserve heap.

Melons.—The first plants are making good growth, and must be encouraged in every way, maintaining the bottom heat at 85° to 90°, and be careful not to overwater, and yet enough must be afforded to keep

the plants in free growth. A genial condition of the atmosphere must be maintained by sprinkling available surfaces—*i.e.*, the walls, paths, &c., and as they become dry, or in the morning and afternoon, and on bright days the plants may also be sprinkled in the morning and early afternoons. On bright mornings admit a little air at 75°, keep through the day at 80° to 85° from sun heat, closing at 85° and run up to 90°, maintaining a night temperature of 70°. Keep a sharp look-out for slugs. See that the linings of dung-heated Melon frames are attended to as they require it, which under ordinary circumstances will be about every ten days or a fortnight, varying of course with the weather and the condition of the materials when the bed is made up.

Strawberries in Pots.—The mild winter is now making itself conspicuous in the results, and the forward vegetation will need protection where it is at all practicable. Where large quantities of Strawberries are forced it becomes necessary, where frames are not available, to erect some sort of protection of a temporary character that will meet the likelihood of injury being done to the tender young growths from the frost or wind. It will therefore be advisable to have all plants that are showing growth collected together and protected from the effects of probable inclement weather. Those intended for a late supply will be best accommodated in pits and frames behind a north wall, for when kept in a favourable aspect for growth they are apt to start before they are required, and thereby interfere with the arrangement for succession. The whole stock should now be examined, the surface soil removed without interfering too much with the roots, and be top-dressed with short manure, which encourages surface roots, and the drainage being seen to and if defective rectified, a healthy condition of growth will result.

With an increase of light the temperature for plants that are swelling their fruit may be raised considerably, but it ought not for the present to exceed 85° at closing time, accompanied by plenty of moisture. Where a quantity of plants is forced and a constant succession must be kept up, it is imperative to set apart a house for the swelling-off of the crops, so that the plants that have fruited can be recruited from the ranks of plants in other houses in rotation.

PLANT HOUSES.

Zonal Pelargoniums.—Those plants that were placed in 5-inch and 6-inch pots in autumn, and have been wintered near to the glass in a temperature of 45° to 50° should now be dwarf and sturdy. These if placed in a house 5° or 10° higher at night will soon flower. Keep them dwarf and sturdy by the admission of air daily, and have the atmosphere in which they are placed rather dry. Water carefully, but as soon as the flower trusses are visible give weak stimulants every time they require water. A good number of dwarf plants may be selected for flowering again from amongst those that ceased flowering in autumn and early winter if they have been properly cared for since then to the present time. Those required to flower as early as possible should not be cut back or stopped, but placed close to the glass in a night temperature of 45°, and as soon as they show their flowers they may be treated as advised above. If in small pots they may be given a small shift as soon as they commence flowering, but we prefer feeding them. Another batch of dwarf plants may be partially cut back, and when they have commenced growth should have their roots reduced and placed in the same size pots. A good position to start them in after cutting back is a shelf in a vinery or Peach house. Do not give too much water until they break, but syringe occasionally. Those plants that have become tall and have been kept dry to harden their wood may now be pruned close back and placed in gentle heat until they break; when the atmosphere is not too moist, do not give much water, but syringe occasionally.

Young stock rooted in autumn and wintered in 2-inch and 3-inch pots on a shelf near to the glass in the greenhouse should now be placed in 4-inch and 5-inch pots. Give them a temperature of 50° until they commence rooting, and then grow them under cool conditions. If the stock has to be increased of either double or single varieties, cuttings inserted singly in small pots will now root readily on a shelf in a temperature of 60°.

Cinerarias.—These plants are in good condition this season, and the winter has suited them exactly, for they do not like fire heat, which often during severe winters, has to be employed to exclude frost. There is nothing that proves so injurious to these plants as fire heat, and it should always be avoided as much as possible. Fortunately very little has been needed, and therefore they should generally be in good condition. The mildness of the weather has brought them forward more rapidly than could have been wished, for many of the latest batch have commenced showing their flower stems, which are advancing rapidly. These may be removed to a cold frame, which should be ventilated as liberally as possible to keep them back, but be careful to place them where frost can be excluded. Feed liberally all plants that are coming into flower, and be careful that they do not suffer from an insufficient supply of water at their roots. Watch for aphides, and on its first appearance fumigate with tobacco smoke, or they will increase rapidly and soon spoil the plants and flowers.

Calceolarias.—The most forward plants are in good condition for placing into 6, 7, and 8-inch pots where large plants are required. The smaller plants may be repotted on as they require it, and will do much better in cold frames where frost can be excluded than what they will upon shelves or in large dry houses. These plants should never occupy such positions in any stage of development, for they delight to stand upon some moisture-holding material. Employ for a compost three parts of fibry loam, the other part being composed of leaf mould and prepared cow manure rubbed through a fine sieve, add sufficient sand to

make the whole porous, and a 5-inch potful of soot to each barrowful of soil. These plants are much subject to attacks of aphides, which on their appearance must be at once destroyed.

Lilium candidum.—Where these are grown in pots do not over-force them, or their flowers if produced will be small. When the flower stems are advanced about 18 inches remove them to a cool house or where the temperature is not higher than 45° at night; ventilate freely, and feed liberally as soon as the flowers are set. No Lily is superior to this for cultivation in pots for early flowering.

THE FLOWER GARDEN AND PLEASURE GROUND

Pruning Climbers.—The various hardy plants employed for covering the walls of dwelling houses and other similar positions are, when once their allotted space is covered, too often allowed to grow at random. Unless annually pruned and the main stems nailed or tied up, they soon become mere thickets of growth, and instead of being decorative are more often extremely unsightly.

Roses.—All such as are growing in sheltered positions, if pruned at once, will in all probability afford abundance of early blooms. Maréchal Niel and the Banksians require similar treatment, both flowering at nearly every joint throughout the strong growths formed during the previous summer. Thin out these growths and all spray in order to secure the requisite number of shoots for the following season's display, and neatly lay in the remainder, all the pruning these require being merely the removal of weakly or unripened points. Teas and Noisettes, including the popular Gloire de Dijon, should have strong leading growths laid in where required, weakly growth hard pruned to induce the formation of stronger flowering wood, and the remainder shortened back to three or four buds, or according to their vigour. Hybrid Perpetuals, Bourbon, and China Roses may be similarly treated.

Wistaria sinensis.—These are generally trained similarly to horizontal Pear trees. Where necessary, lay in the single leading growths, the unripened ends only being shortened, and spur back all the remaining strong lateral growths, this resulting in the formation of flowering spurs. They should not be crowded, and each main branch ought to be not less than 10 inches apart.

Chimonanthes fragrans.—The flowers of this deciduous shrub are borne principally on the spray, and to secure this lay in strong ripened shoots as much as possible, and these next season will produce flowers at every joint. Cut back all strong lateral growth directly after flowering, but not too severely, and this was also result in the formation of more spray.

Pyrus japonica and Crataegus Pyracantha.—Neither of these flower freely if allowed to grow into thickets, which the latter especially is apt to do. Any that are in this state should be cut hard back, and if the young shoots resulting are thinned out or laid in, these during the second spring following will have flowering spurs at every joint, and very beautiful they will prove, the Crataegus subsequently developing into wreaths of showy berries. Any not much crowded will yet be improved by being shortened back, and lay in the long shoots formed last summer wherever possible.

Jasminum nudiflorum and Forsythia viridissima.—Both these flower on the young shoots formed during the previous summer, and to secure abundance of these directly after the flowering period is past, cut the whole of the lateral growth hard back, only laying in any where space is yet to be covered. The Forsythia is the latest, and ought to be as common as the Jasmine. The common Jasmine (*J. officinale*), to be closely cut back to the main branches, the flowers being borne on the points of the many young shoots resulting.

Clematises.—The early-flowering sorts, such as Albert Victor, montana, Lord Londesborough, lanuginosa, and varieties produce their lovely flowers at nearly every joint of the strong growths formed during the previous season; these, therefore, should be merely thinned out where required, those reserved shortened where weakly, and neatly laid in. Those of the C. Jackmannii type, including rubro-violacea, rubella, tunbridgensis, Prince of Wales, and Alexandra, flower from the current year's growth, and to secure the requisite number of strong shoots freely thin out the old or last season's wood, and shorten back those reserved to within a few joints of their starting point.

Loniceras.—The Japanese and golden-variegated varieties should be freely cut in to the main branches and plenty of bloom will follow. Ivies also should have all loose growth cut hard back to the main stems, and any of the latter not firmly attached to the walls should be secured with shred and nails.

Magnolias.—The large evergreen sorts should merely have the long straggling shoots laid in and the fastenings to the main stems renewed where required, as strong winds have much power over these large-leaved shrubs. The deciduous varieties form short flowering spurs, and all that is necessary in their case is to cut back any strong lateral shoots. Ceanothuses also to be freely cut back, these flowering on the current year's growth. Passifloras to have all old flowering growths cut back to the main stems, and Fuchsias and Aloysia citriodora to be either cut down or spurred-in to the main growths.

Planting.—It is not yet too late to plant any of the plants mentioned, especially as the majority are supplied in pots. Form a good border, digging deeply and manuring freely, and well ram the soil about the balls of roots. Mulch with short manure or leaf soil, and never let them become dry at the roots.

CULTURE OF POINSETTIAS.—In answer to your correspondent, Mr. J. Sanderson, in the Journal of February 7th, page 105, I agree that they require a higher temperature where he is situated than they do in Sussex. The bracts on Mr. Sanderson's plants must be extremely

handsome, perhaps he may oblige the readers of this Journal with a few useful notes.—C. H. STEPHENS, JUN., *Lyne Gardens, Sussex.*

THE BEE-KEEPER.

FEEDING BEES.

MORE than one inquiry having reached us whether weak hives should be fed in the spring, we cannot do better than publish what has been written on the subject of feeding bees by the late Mr. John Hunter:—"The means by which food may be administered to bees is elsewhere considered, and I will now explain when and in what quantity it should be given. At the time a swarm issues the weather is generally fine; but it sometimes happens a change takes place, and the swarm having no stores, and not being able to gather any, of necessity suffers. Such a contingency happening, the prudent and merciful bee-keeper will give food at once, not too fast—say half a pint of syrup *per diem*; if a superfluity be given the swarm will occasionally construct drone combs to store it in, which is not desirable. Bees when they swarm seem filled with an uncontrollable impulse to build combs; this is a necessity of their future existence, and it is of the utmost importance that the impulse should be fostered and encouraged. The queen cannot of course lay an egg without a cell to put it in, and as she is capable at this time of laying 2000 or 3000 each day, the waste to their owners will be easily seen should all these embryo bees be lost. Old stocks in the spring have their stores at the lowest ebb; the winter's consumption has not been made good, and unless the prudent insects find food is coming into the hive no great amount of breeding will take place. Of course the earlier bees breed the sooner they will swarm or store in supers; and in a great measure breeding may be induced at the will of the bee-master. As soon as the weather will allow in the spring every stock should be examined, and if found deficient in food it must be administered. In cold damp weather too much syrup is not good; there is no objection to sufficient being given for daily consumption, but the bees must not have enough given to fill their combs, or the damp arising from it will very likely cause dysentery, and if over-supplied they will be apt to store it in the centre combs, being the nearest, and these are all just which should be left for the queen's use. Barleysugar is a very good food for such times, and may be given to the bees either in a bottle or put into the hive, not too much at a time, or it may liquify and form a trouble as well as waste. Barleysugar, superior to that bought at confectioners, may be made as follows, viz.:—

"Break up 3 lbs. of loaf sugar, place it in a saucepan or preserving pan, and pour half a pint of cold water upon it and half a wineglassful of vinegar, these are all the ingredients required. Prepare a fire in a grate, the top bar of which will let down in a similar way to that in an ordinary kitchen grate, taking care, however, that at the commencement of the operation the bar is up in its place, and the grate full to the top with glowing cinders or wood embers, so that a great heat may be obtained without any flame. The saucepan containing the sugar place upon the fire and stir it without ceasing. In a few minutes it will begin to assume the character of dirty broth, which will have anything but a nice appearance, but presently a thick scum will rise and the mass will try to boil over. As soon as this is observed the saucepan should be removed from the fire until the ingredients have cooled a little, when it should be set on the grate again in such a way that only a small part of it is over the fire; the boiling will then go on on the exposed side, and as the ebullition takes place the scum will be forced to the side not over the fire, whence it may easily be removed with a spoon. Thus the saucepan is held in the left hand, the spoon in the right, and the saucepan being on the left-hand side of the grate, with its right side exposed to the action of the fire, the scum will retreat to the left or cooler side, and will be in the handiest position for removal, as will be evident in a few minutes to anyone trying it. After a quarter of an hour of this treatment the mixture will have become in a great degree clarified, when it should be removed from the fire, while the top bar of the grate is let down so as to permit of its nearer approach to a greater heat. Should there be any irregularity of the fire it should now be corrected, but flame should be prevented, as the mixture having parted with its water will be liable to take fire if brought into contact with flame. It will be well here to remark that so long as the scum remained on the syrup there was a tendency in the whole to boil over, since the water evolved in the form of steam, while the boiling was going on accumulating in a body, would lift the scum above the saucepan to enable it to escape; but when the scum was gone the water would be evolved in bubbles of steam, which would crackle but not boil over, unless a very intense heat were applied. The duration of the boiling of the clarified syrup before it becomes liquid barleysugar will depend upon the amount of heat and the consequent evolution of the water to which it is subjected; but trials may from time to time be made by dropping a little on some cold surfaces to see if it becomes brittle, and when that state is arrived at it is done. Pour it into a tin dish, set it in a dry cool place until it becomes hard, and then by striking the tin on its under side the whole of the barleysugar will be splintered into fragments, when it may be placed in bottles and corked up for use as required.

"Those who wish for early swarms and strong stocks will do well to feed slowly in March or in April, even although the stock has plenty of stores; one of Mr. Cheshire's feeding stages will be found an admirable aid to effect this properly. The object aimed at should be to afford a

constant steady supply without a break. If the stage be used, as much as the bees can suck through two or three holes will be sufficient; this will be perhaps one-third or one-fourth of a pint daily. So long as this supply be kept up, so long will the queen lay and the bees tend the young; but if the supply be stopped for a day or two, and nothing comes in of Nature's providing, the bees will destroy all the young larvæ and even those almost ready to emerge should famine appear imminent. In May and June last (1874), when bad weather succeeded a few fine weeks, the bees could be seen carrying out their nearly mature young in thousands. When feeding is continued during the day as well as night, take care the supply is well protected against robber bees, or it will lead to fights and slaughter.

"Bee-keepers often express astonishment that their bees after wintering all right die in the spring. The cause is easily explainable: the stock had enough honey to last the winter, but not sufficient to supply the large demand of spring when the young put in their claims on the commonwealth.

"When a stock has become very weak and impoverished, the bees often display such lassitude that they do not accept the proffered food. In this case they may be excited by pouring into and amongst the cluster half a cupful or more of the syrup made warm; they will then set to work cleaning one another, and gain strength and inclination to make use of the remainder. Bees in straw skeps may also be fed at other times by pouring syrup in a fine stream into the combs; this will run into the cells and be afterwards properly taken care of by the bees. The quantity given must be regulated by the weather and other circumstances, bearing in mind the caution I have given as to dysentery.

"A small swarm, which if left to itself would infallibly die, may be often built up into a moderately strong stock by slow and judicious feeding, such as I have described for spring stimulation. The regularity of a small supply will induce the bees to build worker comb, and as fast as built the queen will stock it with eggs. If too much food be given it will be a misfortune, the cells being filled with honey where should be brood. Autumn feeding should be on a totally different plan to that I have been writing of—then the one object is to get the bees to store enough in their hives to last the winter. Towards the end of August every hive should be examined, and such as do not contain at least 20 lbs. of honey should be fed until that weight be reached. The weather being warm, the syrup will soon evaporate sufficiently, so the bees may be supplied as fast as they can take it. A strong stock will have no difficulty in storing away a quart of syrup in twenty-four hours. If the hive be not fully supplied with combs this liberality should not be exercised, or too much drone comb will be made, which is not desirable; better by far first persuade the bees by slow feeding to make the comb, and then give them the wherewith to fill it. It is a common practice to obtain bees by means of driving, either by gift or purchase, from those who would otherwise destroy them in the autumn for the sake of their stores. These bees, by slow feeding, may be induced to fill their hives with combs and honey, but the experiment is troublesome and costly, and those who have other stocks would find it better to join the poor eastaways to their more fortunate sisters, which will benefit all parties. Such a beaten-out stock of bees would consume 30 to 40 lbs. of honey to bring them into a fit state to winter. Syrup, as a bee food, may be made as follows, and the present low price of loaf sugar, which should alone be used (about 33s. per cwt.), is a great advantage to the bee-keeper, as this article is undoubtedly the best for general feeding. If a strong syrup be made of it by boiling with water, the sugar will either recrystallise as the syrup cools or subsequently as the water evaporates. If it be used in this form it is liable to solidify, or, as the sugar-baker calls it, grain, after it has been deposited in the cells by the bees; should this happen, they will be unable to feed upon it. This may be effectually prevented by adding to the syrup while boiling a small quantity of vinegar. The amount of vinegar necessary varies with its strength; but about a table-spoonful of that in general use will be sufficient for 4 lbs. of sugar, which will make with two pints, or 40 ozs. of water, a syrup of the right consistency, and which should boil for ten minutes after the vinegar is added; 20 ozs. of water measures a pint. Rather more water may be used early in the season, when the bees are breeding rapidly, because they then need a thinner syrup to prepare food for their young than is required for store for winter consumption. After preparing this food, put a little of it upon a piece of window glass, when it should simply grow stiffer without losing its transparency as the water dries out of it. If crystals are formed, and it becomes white and opaque, it must be reboiled with a little more vinegar. Instead of vinegar, cream of tartar may be used, of which a quarter of an ounce must be added to 4 lbs. of sugar. This food will at the present time cost about 2s. 8d. per 14 lbs., or a little over 2d. per lb.

"Honey is of course the most natural food to give to bees, but sugar syrup answers equally well and is far less valuable; and unless the source from which the honey comes is known to be pure, there is a danger of introducing with it 'foul-brood.' Foreign honey is said to be very often contaminated by this plague. Those using frame hives, where the frames are interchangeable, will often be able so to arrange their combs as to save much trouble in feeding. Some hives have more honey than they require, therefore can part with a comb or two to their poorer neighbour, and thus the stores may be equalised."

TRADE CATALOGUES RECEIVED.

Samuel Yates, 16 and 1 Old Millgate Manchester.—*Catalogue of Vegetable and Flower Seeds*

William Paul & Son, Paisley.—*List of Florists' Flowers.*
 George Templeton, Prestwick, N.B.—*Catalogue of Florists' Flowers.*
 Louis Van Houtte, Ghent, Belgium.—*Catalogue of Gesneraceous Plants.*
 Wm. Rennie, Toronto, Ontario.—*Seed Catalogue for 1884.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (W. J.).—We are not able to answer your questions. Write to Harrison Weir, Esq., Weirleigh, Brencley, Kent.

"Solidified" Sap (Ritchie).—Why do you desire us to ask Mr. Iggulden what he means by the above term? We do not remember that he has advanced any such theory as your letter indicates, and which you endeavour to controvert. If you will be good enough to point out the page in which Mr. Iggulden has employed the term you quote, and in the sense you imply, we will place the matter before him, and he will doubtless be able to "explain what is meant."

Variegated Parsley (J. W., Pershore).—The Parsley sent is attractively variegated. We should certainly save seed from the plant with the object of ascertaining whether the variety could be perpetuated in this manner, the same as variegated Kales are, and should not permit any of the ordinary green Parsley to flower in the vicinity of your plant.

Removing Bulbs (M. I.).—Narcissus and Crocuses appearing above the soil may be safely transplanted if a large quantity of earth is secured with the roots and these are kept constantly moist when out of the ground. We have often taken up such plants and flowered them in pots satisfactorily a week or two afterwards. We presume you wish to remove the plants to another garden; if so, the sooner you do that the better, as every day's delay will lessen the chances of success. If it is a question of removing them or losing them, we should certainly try the former alternative.

Primula Emperor (W. J. M.).—This very handsome Primula was shown by Messrs. Cannell & Sons, Swanley, and undoubtedly deserved the certificate awarded, for the flower is of great size, of fine substance, and excellent form.

Propagating Cornus sanguinea (J. R., Salop).—Although cuttings of this shrub will strike they will not do so with anything like the readiness of Osiers, and the usual mode of propagation is by layers in the autumn, or the shoots may be pegged into good soil at the present time.

Potatoes Diseased (T. S., Chertsey).—The tubers you have sent are affected with the ordinary murrain, and has been aggravated by a too liberal use of nitrogenous manures. We advise you to obtain a fresh clean stock, and if you use kainit in the drills at the same rate as you have used guano, and top-dress the plants at the time of hoeing with sulphate of ammonia if they are not growing fast enough, the crop will, we think, not be less in bulk, and will be the less likely to be attacked with the disease.

Fuchsia procumbens Fruits (Miss A., Carmarthenshire).—The name of your plant is Fuchsia procumbens, a native of New Zealand, where it was found by Richard Cunningham in 1834. It abounds chiefly on the east coast, growing upon the sands above the tide. It is a common greenhouse plant in England, and is pretty both in flower and fruit. The shoots may be allowed to hang down around the pots, which should be suspended from the roof if this system is adopted, or the branches may be trained over a small globular trellis, and the reddish fruits appear very attractive in this way.

Grubs Infesting Ferns (L. F.).—The insects sent are the larvæ of an abundant and troublesome weevil, Otiorhynchus sulcatus. In the autumn the parent weevils very frequently deposit their eggs at the base of the stems of various plants in pots, and the grubs feed under the earth from that season until the spring. It has been recommended in such cases to apply clear lime water freely, or a weak solution of paraffin, say a wineglassful to two or three gallons of water. Recently hellebore tea, of the strength of two ounces to the gallon, has been found serviceable as an application for the destruction of subterranean insects in pots. No insect life can resist this, and the plants do not sustain the slightest injury. We advise you, however, in repotting the plants to remove as many of the grubs as possible from the soil and destroy them. By what you say the Ferns certainly need repotting.

Loam for Potting and Vine Borders (L. L. L.).—It is not easy to determine the relative merits of different kinds of loam when the samples are as dry as if they had been half-baked in an oven. We have examined those you have sent carefully, and consider No. 2 decidedly preferable to No. 1 for Vine borders and general potting purposes. It is firmer and richer than the other, which contains little or no humus, and would not, what gardeners term, "wear" well. But then it is important to know whether the pasture from which No. 2 is taken is saturated or not, and if it is, then the soil would not be good until partially dried and aerated as in the sample before us. If

from a drained—that is, not a water-logged pasture—we should use No. 2, and add to it lighter ingredients, such as leaf soil, for such plants for which it is naturally too heavy. Although not of first-class quality, it might be made to grow most loam-loving plants well, also Vines and fruit trees. No. 1 is too poor.

Begonias for Bedding (J. R.).—Plants well prepared for beds somewhat in the manner described on page 138 last week, and planted in good condition, strong and sturdy, in rich soil, are very different in character from the tall weak fragile examples you describe as produced in pots. We have seen thousands of Begonias in beds without a stake to support them. The plants were inserted about 9 inches apart, the growths 2 or 3 inches high, and stems as thick as your finger, the tops of the tubers being placed 2 inches beneath the surface, and the soil mulched to keep it moist. The beds were a dense mass of stems, foliage, and flowers, and were not injured by wind or rain so much as Pelargoniums were. Whether they will succeed equally well in your garden we are unable to say. Much depends on its exposure, and more perhaps to the way in which the plants are treated. It would appear to us wise to try a few plants this year and gain experience, planting your bed with Pelargoniums, which you say are the "only plants able to withstand the gales without crutches." Begonia tubers may be preserved as easily as Potatoes, and planted year after year.

Cutting down Zonal Pelargoniums (F. J.).—You may cut down the plants now to any extent desired, keeping the soil rather dry than otherwise. When they have started and produced growths half an inch long shake the plants out of the pots, removing much of the soil from the roots, repotting in pots of the same size as before, or smaller, applying water judiciously, and if placed on a shelf near the glass in a warm greenhouse you will soon have dwarf healthy specimens that will flower freely during the season. Cuttings inserted now strike readily in a temperature of 60°, and well managed make excellent plants for flowering in the autumn and winter. It is quite possible the Apple may be a small specimen of Lady Henniker. It is passing strange to us that you did not give the information when sending the fruit that you give now. We note what you say about preserving the Journal; it is a good plan, and we thank you very much for your further aid if needed in the case you mention.

Smoke not Ascending Chimney (Chimney).—It is evident there is something defective about the furnace or the flue carrying off the products of combustion. Probably there is no rise from the furnace into the flue, which there ought to the extent of at least half that of the depth of the furnace, and then the flue may be taken level to the chimney, as the 2-feet rise in the flue from the furnace to the chimney is practically unimportant. We should raise the flue at the end next the furnace, so that the smoke will rise directly upwards before entering the flue, and then we think you will have plenty of draught, which is really all we can see, from the imperfect data furnished, that is needed. We cannot depart from our rule not to recommend dealers.

Making a Lawn Tennis Ground (J. T. Sinclair).—The first consideration where the soil is strong is to drain the ground efficiently, so as to prevent water lodging in the subsoil, and then fill up the drains with rubble to within a foot of the surface, to which depth the whole of the surface should be stirred, or as deeply as the good soil admits, by digging or trenching, but not bringing up any or very little of the stubborn soil to the surface. It is necessary that the whole of the soil be stirred to an even depth, so that it may settle evenly, for if hollows are filled up in order to obtain an even surface it is essential that the hills be taken down, and not only that, but be stirred to a corresponding depth with the hollows, in order to the whole sinking evenly. If the soil be of a stiff adhesive character some old mortar rubbish, rubble, or ashes may be mixed with the top foot, so as to increase its porosity, but do not put it in layers, but incorporate thoroughly with the soil. To prevent the surface becoming soapy, as heavy soils are apt to do in moist weather, add about a fourth of coarse sand to the top three or four inches of soil. If the soil be poor add some well-decayed manure, so as to favour a free growth of grass, and so form a good sward quickly. The ground before sowing should be trodden firmly, but it must be done when the ground is dry or when it does not clog to the feet. A fine tilth is necessary to be obtained before sowing the seed, which is best done during showery weather in April, and rolled immediately the surface is sufficiently dry, that the soil does not adhere to the roller.

Vine Shoots Fasciated (J. G.).—Your Vines are evidently in a strong fruitful state, and we think you will not have much to complain about when the crop is ripe. The lateral you have sent with its divided axis of growth is the result of the union of two eyes or buds, or rather the growths issuing from them, which has formed a fasciated stem. You have done quite right. We should top the lateral at one or two leaves beyond the most promising bunch, and remove the other growth entirely at the same time. The one retained will attain strength quickly, and the bunch will receive adequate support from active well-fed roots. It is not at all likely that the fasciated character will be retained, and the probability is that you will see little more of it after this season.

Cropping Vines (Cambrian).—One pound and a half of well-finished Grapes to each lineal rod of Vine is considered a good crop of Grapes, and although many crops are heavier the weight named probably considerably exceeds the average. As an example of heavier cropping, our late correspondent, Mr. Honeyman, whose portrait appears in another column, cut from a Vine two years after planting having a rod 7 feet long, 19½ lbs. of Grapes, and the following year, the rods being extended to 13 feet, the weakest Vine gave 27½ lbs. and the strongest 46½ lbs., some of the bunches weighing over 6 lbs. As to the quality of the Grapes, two of the bunches from the house were awarded the second prize at one of the largest shows in the kingdom against seventeen competitors. The Vines were 3 feet apart, and the crop was extraordinary. You may be content if you grow half a pound of first-rate Grapes from "each square foot of roof," this being equivalent to 1½ lb. per lineal rod, and the Vines 3 feet apart.

Plants in Bedrooms (Idem).—The following observations of an eminent gardener and able writer will answer your question:—"Are plants in rooms promotive of health and cheerfulness? In the case of all living-rooms I answer in the affirmative. Delicate people complain of headaches and sickness from their presence, and will, therefore, have them excluded, and

rightly too. Plants with powerful odours will sometimes produce that effect. I have known ladies that could not go near a Jasmine; others that hated Musk; some that would faint at the propinquity of a Heliotrope, and others that only approved of Mignonette when not nearer than a furlong. All of us have something peculiar in our likes and dislikes. It is rather ill natured to consider such peculiarities as mere fid-fad imaginaries. Common prudence would say, 'Keep at a distance from whatever harms you.' In bedrooms that are shut close at night I would advise dispensing with flowers having powerful odours, even though agreeable to the olfactory nerves of the owner. If he prefers retaining them it would be advisable to place them nearer the floor than the couch on which he reposes. But why not have air in the sleeping-room at night, instead of shutting it up close, when the weather is at all favourable, and thus serve the interests of the occupants and those of the plants at one and the same time? The idea of the unhealthiness of plants in living and sleeping-rooms has been suggested by our chemical friends demonstrating the influence of vegetation on the atmosphere, and the reciprocal action ever going on between the vegetable and the animal world. They tell us truly that animals are continually taking oxygen gas from the atmosphere, and throwing, by exhaling, carbonic gas into it, and that from this and other causes, but for living vegetation, the air would become impure and unfit for breathing. The solid part of plants being chiefly carbon—of which charcoal may stand as a familiar type—and every green part of a plant having the power to absorb this carbonic gas in the atmosphere during light, its quantity is thus lessened, while the action of the sunbeam enables the plant to decompose the carbonic acid thus received, to retain, add, or assimilate the solid matter (the carbon) to itself, and to set the other constituent (oxygen) free for the benefit of the animal world. Thus it would seem that the nearer we get to healthy vegetation the more likely we shall be to get the benefit of this fresh-forming oxygen; but, as if to damp our enthusiasm, we are presented with a lesser and a greater drawback to our satisfaction. This lesser is, that all unhealthy parts of a plant, yellow leaves, &c., and, what is more painful still, all flowers in proportion as their colour recedes from the green, vitiate the atmosphere rather than improve it even during the day. The second drawback is, that at night, or in darkness or much shade, even healthy plants exhale carbonic acid gas and inhale oxygen, and just in proportion to their size and powers deteriorate the atmosphere like ourselves, and therefore become, especially after twilight, very undesirable neighbours in our dwelling and sleeping-rooms. To this heavy accusation I reply that, in general, the size of flowers, in proportion to green leaves the plants grown in rooms, is so small that during the day the advantage greatly outweighs the disadvantage; and though undoubtedly plants do give off carbonic acid gas at night, yet at that time the rooms are generally at their coolest, and as this gas is something like three to two heavier than common air, it will, in such circumstances, fall to the floor, and only be mingled with the general atmosphere by the heat and the sunshine of the following day. Unless the plants were extra numerous the absorption of oxygen would not much influence the air of the apartment. All or almost all injury might be avoided by seeing that the plants were lower than the seat or couch of the owner. I believe this the more because dew, the condensed moisture in the air near the ground, holds much more of this gas in solution in general than common water does. On the whole, then, unless in the case of delicate invalids, or of plants with very large flowers or having a powerful odour, I believe that healthy plants in rooms are decidedly beneficial, and promotive alike of cheerfulness and health, and that this is especially the case in large cities and towns." To that we have only to add that a very large number of plants would be needed to vitiate the air so much as would be done by one adult individual. Hardy Ferns may be planted just as they are commencing growth.

Names of Fruits (*G. Randall*).—Golden Knob. (*G. Cummins*).—Dumelow's Seedling.

Names of Plants (*C. E. T. M.*).—Helleborus guttatus. (*H. S.*).—1 Ruscus hypophyllum; 2, Eleagnus variegatus; 3, Eurya latifolia variegata (*G. R. J.*).—Centaurea candidissima. (*W. G., Leeds*).—A poor variety of Lælia superbiens. (*W. D.*).—The flower was almost unrecognisable, but it resembles Philadelphus coronarius. (*W. J.*).—Rhodora canadensis. (*James Woods*).—As we stated last week, and many times previously, we do not undertake to name Camellias nor varieties of any florists' flowers. See page 139

COVENT GARDEN MARKET.—FEBRUARY 20TH.

TRADE brisker, prices all round being firmer.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	to 5 0	Nectarines dozen	0 0	to 0 0
" per barrel	0 0	0 0	Oranges 100	6 0	10 0
Apricots box	0 0	0 0	Peaches dozen	0 0	0 0
Chestnuts bushel	10 0	0 0	Pears, kitchen dozen	1 0	1 6
Figs dozen	0 0	0 0	" dessert dozen	1 0	5 0
Filberts lb.	0 0	0 0	Pine Apples English .. lb.	2 0	3 0
Cobs per lb.	1 3	1 4	Plums and Damsons ..	0 0	0 0
Grapes lb.	2 0	6 0	Strawberries oz.	0 0	2 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Beans, Kidney 100	1 0	0 0	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 3
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	1 6	2 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capicums 100	1 6	2 0	" Kidney cwt.	4 0	5 0
Carrots bunch	0 3	0 4	Rhubarb bundle	0 4	0 0
Cauliflowers dozen	2 0	3 0	Salsafy bundle	1 0	0 0
Celery bundle	1 6	2 0	Scorzoner bundle	1 6	0 0
Coleworts doz. bunches	2 0	4 0	Seakale basket	1 0	1 0
Cucumbers each	1 0	1 9	Shallots lb.	0 3	0 0
Endive dozen	1 0	2 0	Spinach bushel	2 6	3 6
Herbs bunch	0 2	0 0	Tomatoes lb.	2 0	2 6
Leeks bunch	0 3	0 4	Turnips bunch	0 3	0 0
Lettuce dozen	1 0	1 6			



GRASS SEEDS FOR LAYING DOWN LAND TO PERMANENT PASTURE.

(Continued from page 140.)

HAVING discarded all ideas of obtaining any advantage by the growth of any variety of Rye or Ray Grass, what varieties shall we substitute for the heterogeneous mixtures to which we have been recommended by the various firms and seed establishments in different parts of the kingdom? The reply to this question it must naturally be made a matter of soil and climate. In describing these the seedsmen have in various instances well set forth the soils by placing them in separate divisions for adjusting the sorts and qualities of seeds per acre. Therefore we cannot do better than adopt these divisions in most cases, and furnish a list of seeds which we, through the experience of Mr. Faunce de Laune and our own, recommend as the best varieties to be used, together with the quantities of each per acre. We have still numerous varieties of permanent Grasses from which to choose, after having discarded all and every kind of Rye Grass. We will therefore choose those varieties, including some Clovers, best adapted for our purpose for seeding upon certain defined soils, taking first the strong clays called tenacious and London clays. We propose to seed them with the Grasses and quantities per acre as follows:—

	lbs.
Dactylis glomerata (Cock's-foot)	12
Phleum pratense (Timothy or Cat's-tail)	4
Cynosurus cristatus (Crested Dog's-tail)	5
Festuca elatior (Tall Fescue)	4
Festuca pratensis (Meadow Fescue)	4
Alopecurus pratensis (Meadow Foxtail)	4
Trifolium pratense perenne (Cow Grass or Perennial Red Clover)	4
Trifolium repens (Dutch Clover)	4
Total quantity per acre	41

We choose the sorts of seed here enumerated not only as well adapted for the soils named, but because they are recognised by a great consensus of opinion by practical and experienced authorities, but by many firms of seedsmen whose experience justifies our selection. To satisfy the home farmer, our readers, and farmers generally it will be necessary to take first, and give the qualities and general value as to permanency. Commencing with the Cock's-foot, this is by far the most valuable of all Grasses, because it grows in all soils, it produces the greatest amount of keep, it is the most nutritious Grass, and seems to grow faster and stronger in extremes of weather, either wet or dry, than any other Grass. There is, moreover, hardly any stage of its growth in which stock do not eat it greedily, and its flower heads appear to be especially nutritious to all kinds of stock, young or old, in excessively wet weather. Cock's-foot has no chance of seeding, unless there is a great abundance of it and the stock are running light. Cock's-foot is often objected to, as it is said that stock pull it up by the roots; but it will be observed that it is not the centre root but the side shoots that are lying on the ground, Cock's-foot being different from the other permanent Grasses in its growth. It also grows quicker than any other permanent Grass after having been mown, and its long leaves may be invariably observed wherever it is present in a meadow after it has been mown for hay. On this account it is extremely objectionable in lawns or cricket grounds.

Timothy or Cat's-tail commences to grow about as early as Cock's foot in the spring, and bears feeding-off remarkably well, as it seems to produce as heavy a crop in summer after having been fed-off in the early part of May as it would have done had it not been so fed-off. It is, like Cock's-foot, never allowed to seed by the stock, for its flower-heads are extremely grateful when the seed is ripe to both young and old animals. This Grass is much objected to by many on account of its apparent coarseness, but as all stock like it there is no force in the objection. The aftermath of this Grass does not appear so strong in growth as that of either Foxtail or Cock's-foot.

Crested Dog's-tail is found everywhere. The roots penetrate deeply, therefore it retains its freshness and successional growth for a longer period than most other Grasses. It is an essential element in mixtures for permanent pasture, as it forms a close dense turf

of nutritive herbage, and in consequence of its deeply rooting is little affected by extremes of weather.

Tall Fescue is amongst the most valuable of pasture Grasses, and is also one of the most productive and nutritious of British Grasses. It is greedily eaten by cattle and sheep, and all stock thrive well upon it. It is, however, a somewhat later Grass, and of a more robust habit, but is nevertheless very valuable for its aftermath. Meadow Fescue is another valuable Grass that in all its stages of growth is liked by stock. It is much the same in its growth as Tall Fescue, but not quite so strong in the blade, and it has, since its more general growth by practical men, increased in their estimation as being well suited for strong soils, for it is both hardy and deep-rooting.

Meadow Foxtail is one of the most valuable Grasses of the farm. It is about one of the first to flower, gives a good bulk of produce, and grows well in any soil where its roots can freely penetrate, and is strictly permanent in its habit of growth, and possessing, as described by a celebrated writer, "the three great requisites of quantity, quality, and earliness in a superior degree to any other." At any rate we may be sure it is particularly adapted for moderately stiff clay and heavy loamy soils, and under favourable conditions will produce a greater weight per acre than most other varieties of natural Grass.

Cow Grass or Perennial Red Clover is well suited to clay soils, for it is very hardy and very productive, and should be used in all seed mixtures for such soils as we are now referring to. It is of a distinct kind from the Red or Broad Clover used in alternate husbandry, for the former has a solid stem or stalk, whereas the latter has a hollow stalk. Cow Grass blooms rather later than Red Clover, and does not yield a second cutting so fully or quickly, but is immensely productive upon heavy soils overlying the chalk.

The last seed on our list is Perennial or White Dutch Clover. This is of much importance in all permanent pastures, especially those used for bullock grazing on strong soils, such as we find in the midland counties, and in fact in parts of various districts in the kingdom. The distinctive character of this is the smaller leaf and close creeping habit of the permanent plant, which is very tenacious of the soils of which we are writing, and is quite different from the strong luxuriant growth of the Giant White Dutch used for alternate husbandry.

All the sorts of Grasses which we recommend for use upon the new and improved style of laying down strong and tenacious clays to permanent grass have been described; still there is and must necessarily be something rather vague in the words "strong and tenacious clays," because it depends very much upon the underlying soils, for if it be chalk, limestone, gravel, or sand a certain amount of porosity will exist in the surface soil, and in the case of chalk and limestone subsoils there will frequently be found nodules of carbonate of lime and marl, which are highly favourable in conjunction with any strong soils, and greatly ameliorate the nature of the clay, be it ever so strong; but when the land is composed of strong clay, only both on the surface as well as subsoil, it will require special cultivation, and on this point we will quote from an article by the late Mr. T. Carrington (Journ. Roy. Agric. Soc., vol. xv., p. 490), than whose opinion there are few more valuable. He says: "No person who has not had experience will appreciate fully the difficulty and tediousness of the operation of converting into really good turf poor strong land which has been constantly under the plough for generations, and in which every bit of vegetable matter has been used up by the practice of having periodical dead fallows dressed with lime." Three points in this quotation are prominent, which refers to tediousness of the operation, the loss of all vegetable matter, and the consequent unworkable state and tenacity of the soil. Taking these points fully into our consideration we have discarded all idea of attempting to grow any variety of Rye Grass, but have introduced those Grasses which are not only permanent but adapted to the soil; and we may safely say where the soil is made rich enough and well tilled before sowing, that a quick and lasting turf will be acquired without the interval so commonly complained of and called tedious by Mr. Carrington. To effect and obtain the other two requisites we recommend that a fallow made by the growth of green crops, and ploughed in as described by the essay on Mr. Peter Love's system of growing successional crops of Mustard and other suitable green produce will be not only made clean, but will be manured simultaneously in the best possible manner; for these and vegetable products in their death and decay will enrich the land and open it, making it porous enough to admit of free rooting for the Grasses, and at the same time furnish humus and vegetable matters with a certain amount of nitrogen, potash, and phosphoric acid for the sustenance of all the Grasses in their infancy, and hold them on with future good management so as to furnish a good turf, by retaining those Grasses which we have recommended in permanency.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—In the pasture districts, especially in those cases where the produce has been removed for hay or ensilage, and also where dairy produce has been sold away either in milk, butter, or cheese, the horses should now be employed in drawing out any compost manure which may have been provided for the purpose, and which should be spread immediately after being laid on. Where no provision has been made of dung or compost, which is too often the case, as farmers are very apt to neglect the pastures and apply all the manures arising on the farm to the arable land, where the extent of arable is considerable. This, however, is not economy, because the artificial manures—such as bone superphosphate, nitrate of soda, and guano—may be applied with most advantage to arable rather than pasture land, simply because almost any addition to the grass land, like composts, yard, or town dung, which have bulk, are sure to answer best, for on the arable, where an increase of soil is to be obtained by deeper cultivation, renders bulky manures unnecessary compared with pasture. In the hand manures we obtain the elements of manure without much substance, the only requisite being dry ashes to assist in the equality of distribution, or when sown by hand damp ashes to prevent the light manures from flying before the wind, more especially when applied for Potatoes in the furrow with the sets. In various pasture districts where cattle are grazed and fattened for the butcher, and especially where they receive cake while grazing, manure will not be required to maintain them in good heart and condition; but where the pastures get no bulky manure the hand tillages should be applied as follows:—3 to 4 cwt. of bone superphosphate per acre applied in February, and 1½ to 2 cwt. of nitrate of soda per acre applied in March, both to be sown broadcast.

Barley-sowing may now be done the first chance when the land is dry enough to work freely, for we hold that it is better to sow Barley early than Oats, because the early-sown Barley will usually produce the best malting samples, whereas Oats, if sown in the middle of March, will generally go on without much check; nor can we very easily produce an overcrop of straw to injure the yield. An experiment of ours some years ago is quite in point, for we once tried one half of a field sown with Barley and the other half with White Canadian Oats. The Barley gave nine sacks per acre of inferior grain, and the Oats yielded nine quarters, weighing 45 lbs. per bushel. Both samples were sold in the same market, on the same day, to the same dealer, at the same price per quarter—viz., 28s. 6d. per quarter. We have not since committed such a mistake as to sow Barley upon loamy or mixed soil in good condition, but we prefer following out the lesson taught by the comparative experiment.

Live Stock.—In early lambing districts of the southern and home counties, where the horned Dorset ewes are some of the forwardest, lambs will have been sold, others must be nearing maturity, and the ewes also should be advanced in condition as much as possible in order that they may be sold at the same time as the lambs, or as soon after as possible; and in all those cases where both ewes and lambs may have been fed with the best food, still the finishing process of fattening will be best completed by giving bean meal in admixture with the cut roots, both for ewes and lambs, the quantity to be arranged according to the cake, which they may have previously received as their daily allowance. The young cattle, both steers and heifers, should be kept in well-littered and well-sheltered yards; and although they may in various instances go out at day time and obtain a little grass, yet a few cut roots, with 2 lbs. per day of cotton cake in admixture with middling hay, will keep them in good growing condition, and forward them for entry upon the summer grazing on the pastures; and in the case of heifers this management will prevent them from suffering from quarter-ill or evil, to which they are subject more than steers, if they lie out at night time on the pastures. Dairy cows, too, will soon be ready for calving, and should be fed accordingly, but not if possible so as to accumulate internal fat, which endangers their lives by puerperal fever or the drop at calving time. Working horses should continue to receive about 12 lbs. per day of roots, either of Carrots or Swedes, later on of Mangolds.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain.
	Barometer at 32.4 Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1884.										
February.										
Sunday	10	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.
Monday	11	29.537	45.0	41.8	S.	43.1	51.8	40.1	69.1	35.
Tuesday	12	29.745	39.4	37.6	S.	41.8	46.3	36.0	68.6	31.3
Wednesday	13	29.978	45.8	43.3	S.	40.8	50.2	36.9	68.2	31.8
Thursday	14	29.966	46.9	45.4	S.	41.4	56.3	42.0	80.4	38.3
Friday	15	30.175	48.5	46.4	E.	43.0	54.4	45.8	79.0	41.8
Saturday	16	30.213	40.3	38.7	E.	43.8	50.4	39.1	53.7	35.8
		30.120	37.8	35.2	E.	41.6	41.3	33.4	58.8	27.8
		29.962	43.4	41.2		42.2	50.1	39.2	68.3	34.6
										0.394

REMARKS.

- 10th.—Squall at 4.10 A.M.; showers, with hail, at intervals all day; thunder and lightning at 11.50 A.M.; fine evening.
 11th.—Fine early; thunderstorm 0.7 to 0.15 P.M., with much soft hail, rather more than half an inch in breadth and length; occasional showers afterwards.
 12th.—Fine throughout.
 13th.—Very fine day, with warm sun; shower after 9 P.M.
 14th.—Fine and warm, but a little rain at night.
 15th.—Much colder, with piercing wind in evening.
 16th.—Cold but fine throughout.

A rather variable week, including some very mild and some cold days. The temperature of the week as a whole considerably above the average.—G. J. SYMONS.



28	TH	Royal Society at 4.30 P.M.
29	F	
1	S	
2	SUN	1ST IN LENT.
3	M	
4	TU	
5	W	Society of Arts at 8 P.M.

ROSES—THE COMING SEASON.

UST as the sap rises in our Rose trees so does the latent heat of our Rose-growers, especially our Rose exhibitors, begin to develop itself, and on all sides questions are continually asked upon many points connected with the flower. What sort of a season do you think we shall have? Should we prune early? What is the condition of your plants? These and other questions are constantly coming before me, so that our interest in the flower is kept constantly on the move. Before making any forecast, which perhaps, like those of the Meteorological Office, are as likely as not to be wrong and to be upset by some "disturbance" or other, we cannot be very far wrong in speaking about the past. Surely such a season has never been recollected by "the oldest inhabitant." We have now reached beyond the middle of February, and have had no winter. The weather has frequently been as warm as in May or June. Indeed on the 12th of this month the thermometer stood at 55° in the shade, and it would have been regarded even for the leafy month of June as a lovely day. Spring flowers are long before their ordinary time of blooming, Primroses are plentiful in the woods, birds are nesting, Nuts are flowering and Roses pushing, indeed in many of them I have seen well-formed buds. These are of course at the extremities of the shoots, and the question naturally arises, What will be the effect of these on the future well-being of the plants? Does it not take so much vigour out of them? and as the sap is rising so rapidly, will there not be considerable bleeding and consequent deterioration of the plant? With regard to the first of the questions, I do not think that we can say that it would be more injurious than what we have so often experienced when we have had to cut and cut away because our Rose trees have been severely bit by frost. We had the same sort of winter last year, although not so mild; but there was the same chorus of howling dervishes over the lost hopes and the impossibility of finding good Roses after such a season, when all the vigour had gone out of the plants owing to their premature growth in the early part of the year. And yet there *were* Roses, and good ones too, and trees that had been all a-growing in February, and were even cut back after pruning in that terrible fortnight in March, did somehow or other throw out lustily, and made good bushes again before the autumn. Who that saw, for instance, the rows of Marie Baumann at Mr. G. Baker's at Reigate could have believed that they had been so situated, had grown early, had been pruned early, had been caught by that severe frost in March, and had to be again pruned? And yet there they were, models of growth and health. In truth, we begin to see that the Rose will stand a great deal more than it was at one time believed that it could.

As to the appearance of the plants, I have seen them in many places north and south, and everywhere they look well. The wood seems to have fairly ripened and the shoots are healthy-looking. I have been surprised, too, to see how little difference there is between their condition in the north

and south. Certainly the most forward shoots that I have seen were in the garden of my friend Mr. Hall in Cheshire, where rather plump buds of A. K. Williams were plainly discernible on the top of the long shoots. I had nothing so forward amongst my own plants; but then the soil in Mr. Hall's garden is perfection, and its richness may have contributed to this result. I therefore with some confidence look forward to the season of 1884. There have been no such deaths as occasioned by a severe winter, and good and generous treatment will, I have no doubt, supply all that is wanted to enable the trees, even after their vigorous pushing out, to put forth renewed powers.

As with the trees so with those who grow them—the sap has begun to rise, and the dates of exhibitions and the drawing-up of schedules are engrossing many minds. The Metropolitan Exhibition of the National Rose Society will take place on July 1st, as announced. The date of the Salisbury Show is unquestionably later than desirable, but it is one of those cases which mark the difficulty of making arrangements: they cannot have an exhibition except on one day in the week (Wednesday), and as we cannot of course have two National Shows on consecutive days, they were perforce compelled to have it on the 9th instead of the 2nd of July. Then, again, I am engaged in an animated correspondence to settle the conflicting claims of Manchester, Liverpool, and Darlington as to dates. There are wheels within wheels, and reasons weighty and numerous brought forward on all three sides, but owing to the loyalty of those engaged in the triangular duel I believe all will be satisfactorily arranged; but only those who are behind the scenes can know the difficulties that surround the attempt to arrange all the shows which must be held within the space of three weeks. As to the southern shows Canterbury will, I believe, lead the van on June 26th. Then follows Reigate on June 28th, the National in London on July 1st, Farningham on July 3rd, Sutton on July 4th, the Crystal Palace, and probably Brockham, on July 5th. West Kent will very likely be either on Saturday June 28th or Saturday July 5th. Maidstone is not yet fixed, but will probably be on the first week in July; and although our veteran friend, Mr. John Hollingworth, has been sadly shaken by his severe attack of illness, yet we are all hopeful that on the return of more genial weather he may be able to look after his "beauties," and may be the victor on many a tented field. There are other exhibitions of which I have no notice as yet, but those named are the principal, and it shows that there is no lack of interest in the flower we look upon as *facile princeps*.

A change has lately taken place in the weather which I cannot but look upon as favourable to our prospects. The wind has come round to east and north-east, dry and cold, with slight frost at night. This will check too rapid growth, and will prepare the wood better for pruning. I see all the prominent shoots are already feeling its influence, and if it continue there will be less probability of the severe frosts such as we had last March.

I have been asked by several persons as to the Rose support invented by my neighbour, Mr. Foster, to give his address. It would be premature to comply, as he has, I believe, declined in some instances to give a sample, because he felt that as it was not patented the sample might be used as a pattern, and he thus be deprived of any benefit arising from it. My opinion of it is very decidedly in its favour. It saves the exhibitor all the trouble of wiring, as it is done in an instant. Mr. Foster's tubes seem also to be a great improvement; for when the Rose has been put into the wire and placed in the upper portion of the tube it can be simply lifted out and placed in any other portion of the box. Exhibitors know well how often this has to be done, and oftentimes with a great deal of trouble, but Mr. Foster's plan makes it as easy as possible. He is trying to arrange some plan in connection with it so that the name of the flower may be removed at the same time, thus enabling the exhibitor to avoid that terrible word

"disqualified," which may have been placed on a box through the confusion consequent on these frequent removals in order to make a box look more symmetrical.

The increase in the number of growers and embryo exhibitors, and the enlargement of the roseries of those who are already such, indicate that we shall have no lack of interest in the coming campaign, and if all goes well there will no doubt be an exciting Rose season.—D., Deal.

DIGGING—A CHAPTER FOR BEGINNERS.

As the plough is the first requisite on a farm so is a spade the most important implement in a garden. I am afraid, however, that gardeners as a rule do not strive to surpass each other in the use of the spade, as ploughmen do in turning up the square straight furrows so pleasing to the eye of a farmer. I daresay some nursery foremen, who see as much spade work as most men, would be able to say that not a few head gardeners who come under their eyes are not over-perfect in the use of a spade, and it is therefore less surprising to find many young men use it in an indifferent manner. But few gardeners get far through life without having to avail themselves of that often-welcome shelter—a nursery. The experienced eye of the nursery foreman soon gauges a man's capacity for digging when he has him a few times across a square amongst some dozen others. In such a position the man who is not skilled in the art will soon find that mere brute strength will not enable him to cope with his more weakly neighbour who has had more practice. Digging is hard labour to anyone, and nothing but actual practice will perfect a man in the art of doing a certain amount of labour with the least exertion.

The necessity of digging and trenching, when it is best done, and the reasons for doing so, are frequently written about; but is the simple operation of turning up the soil of so little account as to receive only a passing notice?

In the first place let me point out the desirability of every youth accustoming himself to work his spade with either hand. When he first starts to dig he will find it quite natural to lift the spade with one hand only. Sometimes it is the right, while in others it is the left; and if he goes on without making an effort to use the other he will find it the more difficult to practise afterwards. Apart altogether from the fact that a man who can work with either hand has an advantage in that while one arm is lifting the other is resting, it does not look workmanlike to see men digging backwards across a square. This is especially noticeable when a few men are at work together and following each other.

A young spademan often makes the mistake of not keeping a sufficient opening. He allows the soil to come forward so as to interfere with the lifting of the next spit, and then he finds he must throw some back on the top of the other, which may not improve the levelness of his work. When digging ground about to be cropped it must be well broken up, not only on the top but at the bottom also. Never dig with a spade amongst fruit trees or shrubs; always use a fork, and that carefully not to break surface roots. In turning up the soil in the autumn or winter the great object is to expose as great a surface to the action of the weather as possible. It should therefore be left rough. When trenched it is left in ridges. After these have been frozen, and when sufficiently dry, they should be levelled down, using digging forks, and again left rough. A few late frosts and drying winds will make soil so cultivated into the best possible state to receive the seeds and perfect a crop. All kitchen garden ground should be regularly trenched every three or four years, and by breaking up the bottom the soil is gradually made deeper without bringing much of the subsoil to the top.

Simple ridging is sometimes practised on heavy lands. This I have discontinued. It involves little more labour than ordinary rough digging, and does not give a proportionate advantage. Having great faith in deep cultivation I prefer double digging. A good opening is first taken out about 15 inches wide and two spits deep. No line is used, as in trenching, but it is slightly nicked with the spade, only a couple of inches wider than the spade, keeping as straight as possible by sight. The ground is then dug over the same as in trenching two spits deep, the only difference is in the treatment of the bottom spit. Instead of tossing it down roughly, as in ordinary rough digging, we set them up leaning against each other cornerwise on the generally more loose top spit. To get these little miniature ridges to stand requires a little practice. The workman must stand in the trench, so that the hand he is lifting with is towards the dug ground. He must only lift moderate

spadefuls, and set them gently but firmly down on one corner, leaning against the last spit. Ground so dug is quite as well exposed to the weather as in any other way; it looks neat, and it does not require any second moving before being cropped, as it is generally done when trenched or ridged.

In digging avoid that slovenly way of pushing the spade into the ground anglewise; send it straight down, and the spit will come up the easier. Also avoid stooping as much as possible. In rough digging the workman should stand up to his full height, or nearly so, every time he lifts his foot to take a fresh spit. It is the continual stooping more than the weight of the work that makes the back ache. Another practice to be avoided is the cutting of heavy soils into great square blocks, as I have often seen done. In ordinary or double digging let the spits be only about 4 or 5 inches thick; and in trenching it is preferable to lift it in triangular pieces without any after chopping.—R. INGLIS.

KEEPING VINE ROOTS NEAR THE SURFACE.

I WAS pleased to see Mr. Thomson's description of his excellent method of treating Vine roots on page 58. I had the pleasure of seeing the Grapes at Drumlanrig a few years ago just when they were finishing, and they were simply splendid, fine-sized bunches with enormous berries, and what was more remarkable it did not matter whether the bunch was held horizontal or perpendicular, the berries never shifted, and the bloom was first-rate, especially of the Black Hamburgs, which is the favourite variety there.

Perhaps a few remarks upon my experience with Vines may not be out of place. I entered a situation over six years ago where there were two large vineries, in which the Vines had been planted seven years previously, but had never given satisfaction, and my instructions were to grow them better or pull them out. As the glass house accommodation was rather limited I resolved on doing something at the foundation and give them a fair chance. I waited patiently until the last week of February, and was favoured with fine mild weather. The Vines had been planted far too deep, and the roots had grown straight out into the border. I could not find a root nearer the surface than 20 inches. The soil was taken out at the end of the border to within 3 or 4 inches of the bottom, and the whole of the outside border was turned over, lifting the roots very carefully and relaying them again among fresh loam within 9 inches of the surface. The border was then covered with manure from the farmyard to the depth of 10 inches. One foot of the soil at the top of the inside border was then drawn carefully back to the roots, and some fresh loam applied to encourage them.

The Vines started their lateral growths very slowly until the fruit was seen, then they rested for about fourteen days. At this stage the vineries were kept rather close and syringed lightly several times daily. Then they started again and did wonderfully well considering the ordeal they had passed through, and the result was the bunches were rather small, but proved satisfactory when sent to table. The inside border roots were lifted in the following spring rather nearer the surface (within 6 inches); and I have since treated our Vine borders annually something similar to Mr. Thomson's method, except that the ingredients were not quite the same. I am now using the Vine and plant manure sent out by the Liverpool Horticultural Company, and without doubt this is a useful manure for the Vine. It is applied occasionally the same as we apply guano, stirring up the surface first and washing it well in.

Another important matter is watering Vine borders, especially those inside. I quite agree with all Mr. Muir said in these pages some time ago about giving copious waterings. The tank here measures 9 feet long, 4 feet broad, and 5 feet deep, and this is emptied within 15 inches of the bottom frequently during the growing season (the dimensions of the borders being 30 feet long by 15 feet wide), but the water is first warmed to the temperature of 70°, sometimes above but never below it. There is a large furnace pot adjoining at the back, which answers this purpose admirably. Tepid water I consider a great boon to Vines, and more especially in the early part of the season. I would like to ask your readers what is the use of making such deep borders (except it be to retain moisture), seeing that Vines do well with their roots near the surface, where they can be fed annually, and it so happens that suitable soil is sometimes difficult to obtain. Of course the rainfall for the district should be taken into consideration; the rainfall here is very heavy. I would like to hear what Mr. Thomson and other good Grape-growers have to say on this point—depth of border.—J. J. C.

EARLY PEAS.

PEAS which were sown in pots the last week in January and treated during the interval as recommended at page 61, will now be ready for transplanting in a warm border in rows 4 feet apart, which, for dwarf-

growing varieties, will be sufficient space between the rows. They should be turned out of the pots carefully, having previously placed a short stick and a piece of matting to each plant for support, and planted with the garden trowel 9 or 12 inches asunder in the row, disturbing the roots as little as possible in the operation. This being done, a little soil should be drawn up to the plants on each side, and then a mixture of lime and soot strewn on each side the ranks of Peas as a protection against the ravages of slugs; then stick them in the ordinary way, putting the two rows of spray sticks sufficiently close to each other to prevent the haulm swaying, and if necessary stick a few Spruce boughs in the ground on the cold side of the rows for a few days until the Peas are completely inured to the weather. After this, in the absence of frost or cutting winds, which are almost as injurious to the young haulms as frost, they should be removed.—H. W. W.

PAINTED VERSUS GLAZED POTS.

REFERRING to Mr. Henderson's remarks (page 143), I think if he will consider that glazed pots can be manufactured at a cost of one-fourth more per cast than ordinary pots he will not have much difficulty in concluding that to put two coats of oil paint on ordinary pots (taking labour and material into the count) will be the more expensive of the two processes; besides, the constant moisture both inside and outside would soon destroy the paint. I have tried the silicate process (dipping the pots in silicate), which so filled up the pores that the pots did not get so soon dirty and green as under ordinary circumstances; but this is all that I can say for the process. I am quite satisfied that if the owners of private gardens could be persuaded once to substitute the glazed pot for the common one they would never begrudge the trifling cost nor revert to the old dirty pot. Let the demand spring up, and it will be odd if makers do not come into the field who may make glazed pots even cheaper than I have indicated.—D. THOMSON.

I HAVE tried the plan of painting flower pots, as suggested by Mr. H. Henderson, with body paint, and decorated them with flowers, &c., of the same material. They look well, and have sold well at local bazaars. A pleasant employment for young gardeners to try their hand at artistic work. But when the pots have plants in them, and regularly watered, I find the paint shells off, so they would have to be used with another pot dropped into them. I supply the cottagers with plants for their windows, and their plan is to give the pots a dressing of red lead and milk. These pots come at times to be refilled, and I find they keep their colour and seem to stand the moisture.

Painted tubs, as stated by Mr. Henderson, answer well with me, as I have red and white *Lapagerias*, *Oranges*, *Passifloras*, *Tecomas*, &c., in them, all growing with the greatest luxuriance.—BLACK PRINCE.

NEPENTHES.

FOR decorative purposes Pitcher plants have a peculiar fitness; their unique and elegant appearance renders them particularly attractive when general plants would be passed without comment. The prevailing idea that they require to be kept in health by a high temperature and an atmosphere saturated with moisture is being slowly exploded. The cooler treatment to which they are proved to be amenable is likely to open up a wide field for the employment of these plants for the decoration of the dining table, and especially for grouping with other plants in halls, corridors, and staircases at party times. A short sojourn in such positions not exactly suitable does them no great harm provided they have been grown in a cooler and somewhat drier treatment for a brief period before being subjected to the ordeal of decoration in the house.

The present time is a suitable one to attend to their requirements, no plants better rewarding the care bestowed on them. Small plants will need a shift into larger pots. If in a 3-inch pot a 5 or 6-inch pot will be a sufficient shift, and those in larger pots will need correspondingly larger sizes, always provided the plants are in a healthy condition at the roots. Good drainage, although *Nepenthes* are semi-aquatic, is of great importance. It should be about a third the depth of the pots, having the largest crocks at the bottom, finishing with the smallest, securing with a layer of sphagnum, or preferably lumpy peat, the dust being shaken out as the peat is pulled in pieces. Brown fibrous peat pulled to pieces, the coarse roots picked out, and those with the smaller particles of the peat rejected, fibrous lumps only being used for potting. Sphagnum does no good, as, mixed with the peat, it soon decays and becomes sour, but a few broken crocks and pieces of charcoal in various sizes keep the material open and sweet. If sphagnum be employed at all it is best as a live covering for the surface. In potting remove all the soil not occupied with roots, and though as much of this as can be picked out from the roots as can be done without injuring them, there must not be any attempt at disrooting. Pot rather firmly, and dash a little coarse silver sand on the surface when the potting is completed.

The best mode of growing and displaying *Nepenthes* is in baskets, for which teak is the best material; 1-inch square strips with the edges bevelled answer for the largest size, which may be about a foot square and about 6 inches deep. This size will accommodate the

largest specimens, the depth being proportionate to the size. Lumpy peat as above described is the proper material for basketing. If it be not desirable to shift into larger baskets the old sour material should be removed and fresh supplied, also in shifting into larger baskets or new remove as much of the old material as practicable without injuring the roots. If the baskets are neatly lined and surfaced with live sphagnum it will add to their appearance.

There is no disputing the luxuriance *Nepenthes* attain in a high temperature with plenty of atmospheric moisture and shade, and it is also certain the growth is lank, the pitchers lacking the size, substance, colour and durability of those formed in a lower temperature, and shade only to prevent scorching. At night 60° to 65° is ample, and 70° to 75° by day, and 80° to 90° with sun during the growing season, and when at rest 55° to 60° at night, and 5° to 10° rise by day according to the weather.

They must never become dry at the roots, and when growing water can scarcely be given too copiously provided it be soft and warm and percolates through the compost freely, passing away as if through a sieve. Atmospheric moisture must be maintained by damping available surfaces two or three times a day, and the plants also when growing, more especially at closing time, which should be early, air being given early in the day. It is essential that there be no heavy syringings, but gentle sprinklings, and a little water kept in the pitchers will assist them to retain their freshness. The nearer the plants are to the glass the stouter will be their texture, and this, with plenty of light, will afford finer and better-coloured pitchers than those grown at a distance from the glass and heavily shaded, besides adding to their usefulness for decorative purposes through their firmer and more persistent texture. When at rest lessened supplies of water and moisture are needed, but a sharp look-out must be kept for thrips, which should be at once expelled.

In the spring or about March the majority of the plants will need shortening, as they are apt to become tall or straggling, which will have the effect of producing new growths at the base as well as increasing their number, and it is on these new growths that the best pitchers are formed. The parts removed may be utilised as cuttings—i.e., the firm part of the shoots, for the soft-growing points are unsuitable, it being the firm wood only that will root and push growth freely. Three at most, or, if the cuttings be scarce, two joints, are quite sufficient for a cutting. These should be placed in equal parts of fibrous peat, small charcoal or small crocks, and chopped sphagnum, with a sprinkling of sand, or they will strike freely in cocoa-nut fibre refuse, placing them in a frame where there is a brisk heat, and they will root slowly but surely. The leaves may be shortened about half or be tied-up loosely. It is essential that they be kept moist. When the cuttings have rooted they should be gradually inured to the atmosphere of the house and the lessened temperature, and then transferred to larger pots, or preferably small baskets in peat fibre, suspending from the roof of the stove, giving them plenty of moisture, and keeping a sharp look-out for thrips, which, allowed to have their own way, will spoil the appearance of the plants. For general usefulness *N. Chelsoni*, *N. Hookeriana*, and *N. Rafflesiana* are probably the best. *N. sanguinea* is very desirable, and such forms as *N. ampullacea vittata*, *N. albo-marginata*, *N. Dominii*, *N. hybrida*, *N. gracilis major*, *N. maculata*, and *N. intermedia* are very effective.—G. ABBEY.

THE USE OF SPRING WATER IN GLASS STRUCTURES.

It seems almost superfluous to affirm that the use of spring water, whether as applied to the roots or the foliage of fruit trees and other plants under glass, is at least a very objectionable practice. It is, however, a well-known fact that many have no other source of supply, and are therefore compelled to use it almost constantly. In some districts such water is especially dangerous owing, as Mr. Abbey has remarked, to the injurious mineral substances it contains, notably when much iron or lime are present. With these facts in view it was with no feeling of complacency that I found myself last season compelled to resort to spring water as a main supply. The probable event in particular of the inroads of the usual insect pests created uncomfortable forebodings, well knowing that the limited supply of rain water at my disposal would prove a serious obstruction in dealing effectually with the enemy with the syringe. I am, however, glad to say that my apprehensions were not realised, at least to any great degree; for although the foliage of Peach trees in particular was not so healthy for a short time as I could have wished, there is no evidence of the present year's crop of fruit being endangered, the same giving promise of being at least equal to last year's, which was more than an average one. Referring to root-waterings, I resolved to reduce the necessity for these to a minimum, and accordingly had all the inside Vine and Peach borders mulched on the surface with a few inches of farmyard manure. One large span-roofed vinery border was covered with cowdung owing to the greater extent of glass surface exposed to the sun. Unless when forced to do so in order to combat insect life I never syringe Vines after they are fairly started. Last season, the foliage being healthy at all times, I am glad our spring water did not require to be tested further than damping surfaces and watering the borders.

Although in my experience the use of spring water has not hitherto been attended with perceptible injury to fruit trees, including Vines and Peaches, to the cultivation of which the glass structures here are devoted, I should not be surprised to know that there are instances in which its use is followed by less favourable results. In some localities the access of surface water from shallow drains neutralises the injurious properties of spring water.

Another word here. I have often felt it not a little tantalising to see the rain water from hundreds of yards of roofing finding its way into the waste pipe, which with ample and convenient cistern accommodation would prove an invaluable boon to the gardener, besides facilitating many of his most important operations.—D. MACKIE, *Ayrshire*.

CURRENT-BUD MITE.

WITH this I send a branch of Black Currant, which you will see is very much affected by a disease known here as "knotted." There are many trees so affected in this neighbourhood (Liverpool), and all my

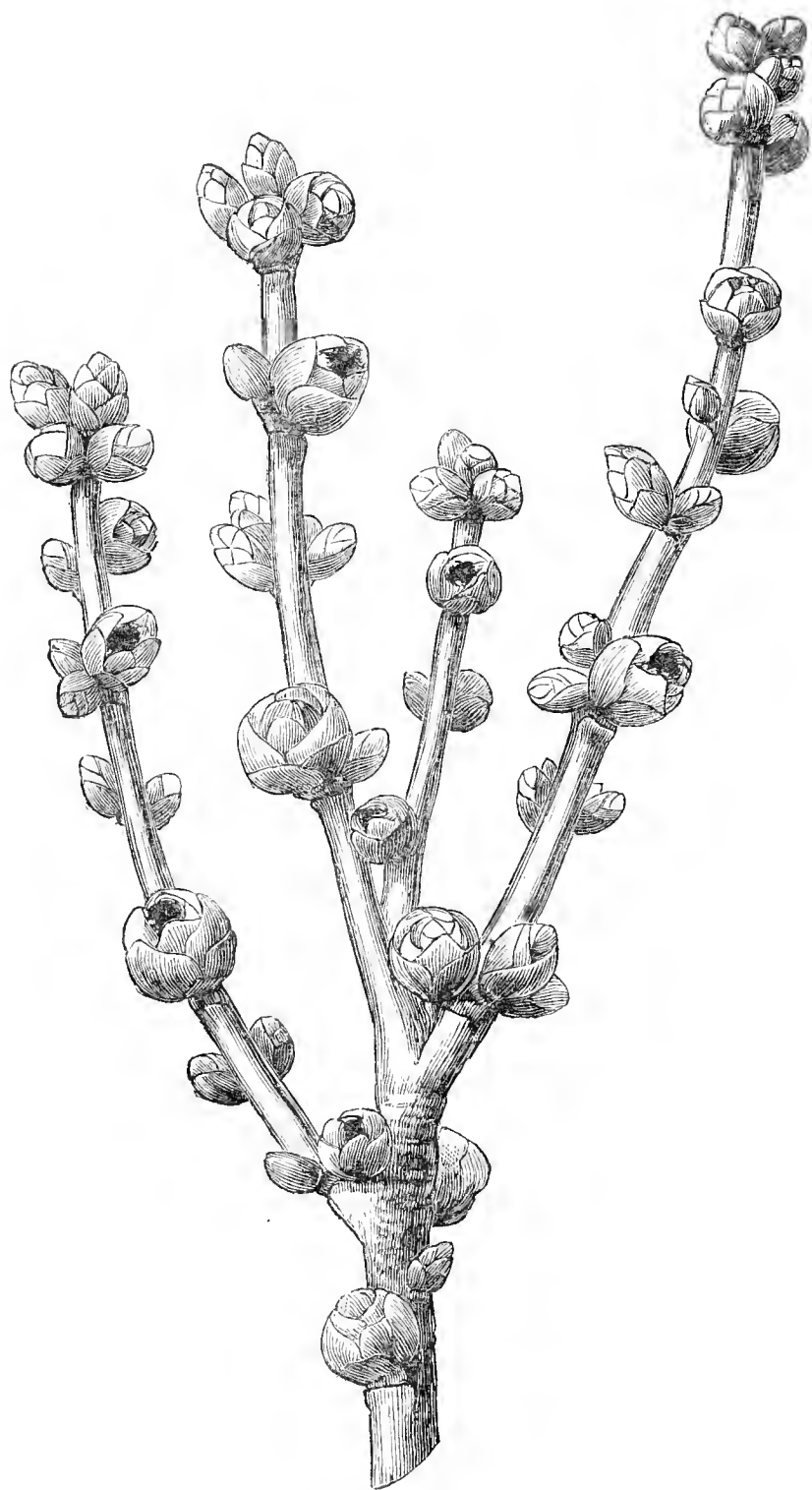


Fig. 31.—"Knotted" Currant shoots.

gardening friends are, like myself, at a loss either to account for its presence or to cure it when once established. I was totally unacquainted with it till I came here nine years ago, and as the trees here were very old I thought age was the cause. I therefore propagated a fresh stock, which should now be doing some good, but which, I am sorry to say, are nearly all more or less affected. If you or any of your readers know of any remedy and will kindly publish the same you will confer a great benefit on many besides myself. I scarcely need add it is useless to expect any fruit from such diseased buds.—T. W.

[We have had two other letters from Lancashire and one from Scotland of the same purport as the above, and they indicate that the Currant-bud Mite is spreading and seriously injuring plantations of the Black Currant. One of the sprays sent to us we have had figured, and we know from experience that bushes that are covered with

similarly enlarged buds can produce no fruit. The subject is therefore one of considerable importance. The knotting is caused by an insect which we fear is not easy to extirpate.

The Currant Mite (*Phytoptus Ribis*) belongs to a rather extensive group of minute creatures, which are by some naturalists placed amongst Crustacea, and by others classed with insects. Present opinion, however, rather tends to put them, with sundry allies, in a group called Aptera, insects the wings of which have somehow disappeared, and legs and transformations are apt to vary considerably. Those in the genus *Phytoptus* either make galls upon leaves or secrete themselves in the buds of plants, which then become "puffy" or else contorted and shrivelled. A good deal of notice has been attracted recently to the proceedings of *P. Ribis*, more especially in the case of the Black Currant. Owing to its minuteness and its mode of life the species doubtless passes unseen in many instances.

The Rev. M. J. Berkley, a well-known physiologist, had specimens of a Currant damaged by some *Phytoptus* forwarded to him in 1869, and this seems to have been the first time this particular pest was noticed in England, but several of the gall-producing *Phytopti* had been known years before. A description of the insect and its presumed habits was published by Professor Westwood in the *Gardeners' Chronicle* of that year, and the matter came also before the Committee of the Royal Horticultural Society. Afterwards the species was definitely named *P. Ribis*, although much discussion arose as to whether these *Phytopti* were really distinct species, several naturalists arguing that they were young examples of another group of mites. But these insects have now been examined in all stages of growth and their position established, yet much remains doubtful as to their habits. The young of *P. Ribis* have when very juvenile but one pair of legs; they gradually increase to the number of six, or occasionally eight, some think. These are very bristly, the body is smooth and rather egg-shaped. It is difficult to discern them, even as adults, unless the eye has the aid of a magnifier.

There is ample proof that this mite is lurking within the Currant buds by November, if not earlier. It is, however, during the spring that our attention is called to them, when by their feeding between the young leaflets, abstracting their sap, they effectually stop the development of flowers, leaves, and twigs. As Mr. Andrew Murray remarks, "the buds attacked are seen to languish and decay, or to assume a rounded swollen form without pushing out ('knotted,' some correspondents style it). On tearing open one, hundreds of very small semi-transparent moving things may be seen by a lens. All the surface of the leaflets on which they are scattered has a moist raw-like appearance; in fact, the *Phytopti* have browsed on it until they have flayed it to the quick." Close and severe pruning is the method suggested by this author for the diminishing of their numbers, but he scarcely thinks their extirpation can be thus brought about. Syringing or washing the bushes with one of the many solutions or compounds that are efficacious for the destruction of insects might clear some of them out of the expanding buds in spring, but would not save the buds from dying off. Then the bushes where the mite has been observed might be also syringed in the autumn, since there may then be a migration from bud to bud. It seems to be most frequent in the northern division of this island, where we have seen many bushes attacked, and some ruined. It may, however, be present also in the south. Bushes infested with this destructive mite should never be propagated from. Young trees should be procured that are perfectly clean and healthy, and be planted as far distant as possible from those affected. We have seen perfectly healthy bushes and others seriously knotted in plantations less than 30 yards apart, and we have cut down affected bushes entirely, burning the branches, the resulting growths from the "stumps" of the decapitated trees being quite free from the pest; but if the mite exists on one plant it soon spreads through a plantation.

Fig. 32 (page 165), for which we are indebted to the courtesy of the Editor of the *Gardeners' Chronicle*, represents in the left-hand figure the bud highly magnified, with the outer scales partially opened, showing a few of the mites, which on an average are individually not more than 1-200th of an inch in length. The centre figure represents one of the insects very highly magnified, as seen when crawling along, the right-hand figure representing a very young example lying on its side in a state of inactivity.

If any of our readers have succeeded in extirpating this small mite, yet great Currant enemy, they will do good service by making their method known.]

SEED TIME.

FROM the steady continuance of mild weather it is probable that we shall be favoured with a forward spring, and among the many matters pressing upon our attention at that busy season of the year none is more important than the timely and careful sowing of vegetable and flower seeds. Seed time, in point of fact, has already begun, for are not our first crops of Peas and Beans already "up" and growing freely? and are we not turning up every patch of soil in the kitchen garden in readiness for the general sowing of crops that are soon to follow? For the first spring crops all heavy tenacious soil should have been broken up roughly last autumn; but soils differ much, and well would it be for gardeners if a common standard of excellence could be adopted for all garden soils, whereby they could be brought into such an open friable condition as to be always ready for the seed. Impossible, do you say? Well, I cannot agree with you,

for I can point to a soil, once unfit for the cultivation of any vegetables now in superb condition for the growth of flowers, fruit, or vegetables. Thorough drainage, followed by trenching and repeated dressings of farmyard manure, coal ashes, lime, and decayed vegetable matter, has wrought the change, and it would be difficult to find among soils a greater contrast than is here presented by the soil in its natural and cultivated condition. Let no one suppose the process of soil-improvement is easy, however simple it may be, and that it is simple I am free to own, but it can only be done thoroughly by dint of downright hard work and unflagging perseverance year after year. My first trial crops in the virgin soil of Mid-Sussex were all failures. Even Horseradish refused to grow, Peas only grew a few inches high, and then died, and the soil settled down again with the first heavy shower into a compact mass, so hard that it had to be thrown up in huge clods with spades, and then watered and beat with Canterbury hoe, to get it to pieces. I mention this to show that I have no occasion to draw upon the imagination for an illustration.

What, it may be asked, has all this to do with seed-sowing? Very much, for without a good seed bed failure is very probable. A prompt and unbroken succession of seasonable vegetables is imperative. But how can this be achieved, when weeks of precious time are lost in waiting for a heavy sodden soil to become dry enough for the seed drills? It is high time that it should cease to be possible for it to be said of any garden soil that it is unfit for this or that crop, or that owing to unfavourable weather seed could not be sown. Surely the comparatively small portion of an estate that is required for the cultivation of vegetables might be brought into a suitable condition for the purpose if the urgent necessity for it were only understood by the owner of the garden. Unfortunately matters do not always work smoothly between gardeners and other heads of departments, and then difficulties arise about manure and other things, and many an earnest man finds his efforts crippled and often rendered futile for want of ways and means in the preparation of the soil. Personally I have no feeling in the matter, for as manager of an estate the garden with me is only a department, which it is my duty to see well cared for; but having repeatedly met with cases where the garden was impoverished and the gardener disheartened simply because obstacles existed which he appeared unable to overcome, I would urge upon the attention of employers that it is clearly to their interest that all reasonable requests for materials or labour in the improvement of the soil should be complied with. May I also venture to ask my brother blue aprons, especially the younger ones who have recently risen to responsible posts, to bear in mind that, however clever a man may be, he is unlikely to be fully successful in his calling if he lacks discretion, judgment, courtesy, and tact in his intercourse with others? What matters the swallowing of a slice or two of humble pie if that and a little forbearance enable you to gain your end?

Given, then, good soil, let us take especial care to obtain seed from a safe source, and never be tempted by bargains in seeds. Good seeds true to name, suitable soil, and skilful timely culture are our three indispensables here. In sowing, especially the earlier crops, we must be guided in some degree by weather. In a cold wet spring a little waiting before sowing often proves a saving of time rather than a loss, the warmer drier soil at the later sowing insuring a quick germination of the seed and a free vigorous growth in the plants that well repays for the exercise of a little patience. Do not forget that from the moment seed enters the soil it is liable to the attacks of mice and birds. In walled gardens mice can be kept under, but without walls this is impossible. Of all means of protection there is nothing like sheets of glass laid flat upon the soil immediately after sowing the seed, and kept there till the seedlings are visible, when it is replaced by netting if there is any risk of birds attacking the plants. Thus far we can protect seed and seedlings with certainty from day and night enemies; but now comes the risk of damage from slugs and snails, very few of which are visible by day, but after darkness falls these "demons of the night" are soon busy at the work of destruction, and a few visits to the seed beds with a lamp enable us to catch most of them. Very thin seeding or early transplantation is most important for all plants raised in nursery beds, or they soon become drawn into a slender attenuated growth, which no subsequent care will improve.

The bulk of winter Greens and Broccoli are sown and transplanted before hot weather sets in, and ordinary care is sufficient; but in the heat of summer transplantation is attended with some risk, and I have frequently found it answer well to prick seedlings of succession crops of Lettuce and Cauliflower singly into flower pots holding a trowelful of soil, so that the plants may be placed in partial shade and eventually be turned out into the beds with such a ball of roots as insures to the plants full power to continue growing freely and to become established in the soil quickly. To avoid the attendant risks of transplantation in very hot dry weather seed is sometimes sown thinly in the rows, and all superfluous plants after-

wards pulled up and thrown away; but this is a wasteful process, which also involves much extra watering.

One word more about seed-sowing in pots. About most seeds so sown there is no difficulty. It is only very fine seeds, such as Gloxinias and Begonias, that so frequently come to nought, simply because so many will persist in sowing on peat, which dries quickly, and is not easily saturated again even by standing the pots in water. Avoid peat for this purpose, and sow on compost consisting of very old decayed vegetable matter, such as all gardens afford a supply of, with fine grit and wood ashes thoroughly mixed and passed through a very fine sieve. Let the soil be well watered before sowing, lay pieces of frosted or whitewashed glass upon the tops of the pots, and the seedlings will usually be visible before more water is required.—EDWARD LUCKHURST.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.

IN your report (page 125) of the annual meeting of this Society, in the member's private balance sheet, of which you gave a copy correctly, there is an error in the figures. I had on the debtor side placed the figure 2 in the wrong column. Perceiving my mistake, with my pen I made a slight dash over it, but not sufficient to obscure it from the printer's notice; so in the deduction for sick pay it reads £2 2s. 6½d., whereas it should only be 2s. 6½d. The amount for the one year's sickness was deducted from the members' contribution as follows: Forty-three members would receive 16s. per week each in sickness; them I charged 2s. 6½d. each, amounting in the whole to £5 9s. 3½d. Fifty-seven members receiving 10s. 6d. per week each I charged 1s. 7d. each, amounting

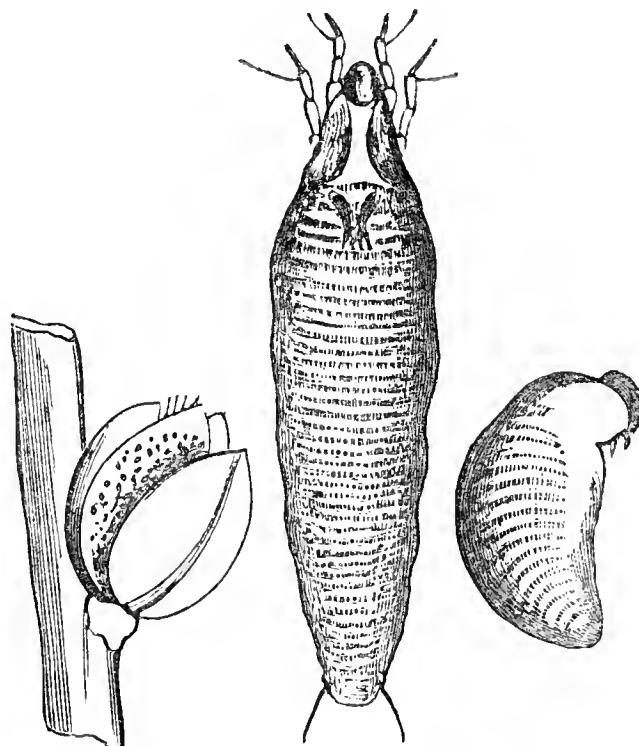


Fig. 32.—Phytomyza Ribis (see page 164).

in the whole to £4 10s. 3d., the total being £9 19s. 6½d. The number of members who received this pay was two—one, a member of long standing, £1 11s. 6d.; the other had just completed paying his first year's subscription, which entitled him to the Society benefits when he became sick, and received in the whole £8 8s. I shall receive shortly from the printer the public balance sheet, with list of members and their addresses, &c., which I will forward with the rules to those who have applied for them through reading the said report.—J. F. McELROY Secretary.

USEFUL PLANTS.

POINSETTIA PULCHERRIMA PLENISSIMA.—A very useful plant, and when treated to the liberal treatment usually given to the single form makes a good succession to that. My experience with this double Poinsettia goes to prove that it is capable of lasting a much longer time in bloom than the single one. Some I have known to say of this plant that it is no use as compared with the old form, to which I reply, "Then grow it for ornament," which it certainly is if well cared for after the "old form" is over.

SPARMANNIA AFRICANA.—Another useful plant flowering just now, and helping greatly to fill up the gap caused by the removal of the Chrysanthemums from the conservatory. In a large state this plant is well adapted for grouping with other plants of a dwarf nature; it is also very pretty in small pots. Cuttings inserted in large 60's shortly will make good plants by the autumn.

ECHEVERIA RETUSA.—This should be grown everywhere and by everybody, it is the easiest plant to cultivate with which I am acquainted. Cuttings inserted now and grown on in a little heat will make useful plants for filling up the centres of flower beds if wanted for that purpose, and if not they should be planted out in the open ground in well-prepared

soil, and attended to during the summer. They must be carefully potted, and should not be overwatered, or the lower leaves will damp.—G. MERRITT.



FLOWERS BY PARCEL POST.—The Postmaster-General has issued the following notice:—"The season is now approaching when, according to a very general custom, Primroses, Violets, and wild flowers of all kinds are entrusted to the Post for transmission between places within the United Kingdom. As the Parcel Post may be extensively used for this purpose, the attention of the public is drawn to the expediency of properly securing the parcels so sent. The box in which flowers may, in each case, be contained should be of a material so much stronger than cardboard as to bear pressure and friction in transit. Cardboard boxes are frequently reduced to pulp by moisture from freshly cut flowers or wet moss soaking through them, and are, therefore, not suitable."

— IN addition to the sums received during the week for MRS. HONEYMAN, and acknowledged by post, Mr. Wright has great pleasure in recording the receipt of £2 17s. 6d. as the result of a subscription amongst the young men in the Royal Gardens, Kew. The subscription list numbers thirty-four names, and was, with the sum named, forwarded by Mr. W. Harrow. The thoughtful action of the Kew students is much appreciated. "W. B., Rothbury," has also sent a further subscription of 18s. from a "few friends." Will he please state the name in which the Post-office Order is taken? Mr. Wright has now received the amount he hoped for, and although any further sums that may arrive will be thankfully accepted, no further appeal is made to the kindness of readers of this Journal.

— QUITE a concourse of Orchid growers assembled at Messrs. Protheroe & Morris's rooms, Cheapside, on Tuesday last, to witness or participate in the monthly SALE OF ORCHIDS IN FLOWER. About four hundred lots were offered, including large numbers of Cattleyas, some very handsome plants; Dendrobiums, Odontoglossums, Angre-cums, and miscellaneous species, which afforded a grand display of flowers. An exhibition such as this is rarely seen in a sale-room, and it is not surprising that it attracted so large a number of visitors. The prices realised were generally good, a beautiful example of Cattleya Warscewiczii delicata with thirty pseudo-bulbs and a dozen expanded flowers being sold for nine guineas, and other fine varieties at proportionate prices.

— RELATIVE to CLEANSING VINE RODS, "A. M." writes:—"At page 90, in the issue for Jan. 31st, 'Ipswich,' in reply to Mr. Iggulden, states that he applies his wash to the Vine rods in the same way as a groom applies water to the spokes of a carriage wheel. That would be with a spoke-brush; but as I cannot think he uses a spoke-brush to his Vines, with what does he apply it? and how does he keep it at the required temperature?"

— WE have still more about CHOU DE BURGHLEY. From a child it has become a parent. We had better, however, publish a characteristic note pertaining thereto.

"Don't look at me and my Chou with a frown. My only object is to put down prejudice. I therefore send you, so that you may for yourself see, that every other green in our garden is run to seed and useless, while Chou de Burghley and my new Savoy are the only things we have for use until the spring Cabbage comes in, and that won't be until April. Another thing I may tell you is they never crack, while others do badly. The new Savoy, Gilbert's Universal, the result of a cross between Chou de Burghley and an ordinary Savoy, is perfectly selected and a 'topper.'—R. GILBERT."

— THE specimens referred to—Savoys, Brussels Sprouts, Colewort, and Scotch Kale—are producing flower stems. "Chou" and the new Savoy show not the slightest signs of moving in that direction. The latter is round, about the size of a cricket ball, the heart being of the same pale green colour as Chou de Burghley, the outer leaves resembling those of Brussels Sprouts more than Savoys. The example before us is quite distinct from anything we have seen, and its lateness in comparison with the others referred to undoubted.

— MR. GILBERT also sends a charming bouquet of delightfully perfumed and very large, double, white, fringed Primulas, with handsome trusses of the large, single, creamy-white Polyanthus or BUNCH PRIMROSE HARBINGER, similar examples of which would adorn any greenhouse or conservatory in the land. The variety is, we are aware, quite hardy, but we cannot imagine that such flowers as those before us could be produced without the shelter of glass.

— "T." writes:—"In my remarks upon GALANTHUS ELWESII, page 148, by some mishap the segments of the perianth are described as 'brown' instead of 'broad,' as I need hardly say no Snowdrop has yet reached us with brown perianth divisions."

— THE CARLISLE AND BORDER COUNTIES HORTICULTURAL SOCIETY have issued their schedule of classes and prizes, which gives the date of the Summer Show, to be held in Major Binning's field, Chatsworth Square, Carlisle, as July 17th and 18th. The prizes are mostly of small amount, but the classes are numerous, ninety-nine being enumerated for all kinds of garden produce.

— ORCHID SALES were numerous last week, no less than four having been held, two each at Mr. J. C. Stevens' rooms, King Street, Covent Garden, and Messrs. Protheroe & Morris's rooms, Cheapside. These were nearly all imported Orchids, and the frequent large consignments of Orchids now sent to this country prove that the demand continues unabated. The sales are well attended by the trade representatives and amateur Orchid growers, the competition for any desirable novelty being often very keen, resulting in corresponding high prices for the vendors. Improved varieties in flower of such Orchids as Odontoglossum Alexandræ and others of a similar character realise, however, the highest prices, and often there is sufficient incredulosity respecting imported novelties, of which the flowers have not been seen in this country, to keep the prices rather low. This was seen in the case of Aerides Rohaneana, of which some of the largest pieces were unsold, and the highest bids obtained for others were twelve or fourteen guineas.

— MR. F. W. BURBIDGE, Trinity College Botanic Garden, Dublin, sends the following note on PLANTS IN FLOWER:—"The little Pinguicula hirtiflora from Italy is now flowering here, also P. caudata from Mexico, and the Sulphur Hooped Petticoat Narcissus (Bulbocodium citrinum) is lovely with seven or eight flowers; N. Horsfieldii, N. princeps, N. obvallaris, and others are also now most beautiful in pots, as also is the old King's Signet or Solomon's Seal forced in a little heat, each long arching stem of soft green leaves now being strung with soft pearly blossoms. Primula obconica in a cool greenhouse, and Impatiens Sultani in a stove, have never ceased flowering for the past fifteen months. The Balsam cuttings even keep on flowering as they are rooting in the propagating pit, and we think it prettier in a small state."

— A PAPER on the average rainfall of the last ten years IN THE ATLANTIC PORTION OF THE UNITED STATES has appeared from the Signal Service Department at Washington, which gives the following interesting particulars:—"Our rains come from the vapour which rises under the warm suns over the Gulf of Mexico. The ice of the north prepares a cold heavy current, which, rolling down towards the lighter column of the Gulf, draws the lighter northward to fill the vacuum. As the colder meets the warmer rain is precipitated, and this would be exactly the same if there were not a tree on the whole Atlantic coast. These show that notwithstanding the awful destruction of the forests of which the newspapers and some magazines tell us, the rainfall of the past ten years is just the same as that of the ten years previous. It is the diminution of the ice towards the pole that we have to fear, rather than the diminution of the forests, when we calculate on our country becoming an 'arid treeless waste.'"

— PARTS 41 and 42 of PAXTON'S FLOWER GARDEN (Cassell and Co.) contain coloured plates of the following plants:—Billbergia Moreliana, a handsome Bromeliad, with long striped leaves and a large drooping panicle of blue and red flowers; Gesnera purpurea, with long tubular flowers borne in a loose panicle, purplish red dotted with scarlet; Cymbidium Mastersii, a species from the East Indies, with narrow white petals and a lip faintly tinged with pink; and Billbergia thyrsoidea, a very distinct and noble species, with a massive dense conical or thyrse-like head of rosy crimson flowers and bracts. In the gleanings and memoranda woodcuts of Begonia Martiana, Acacia cochlearis, Nicotiana alata, a species very nearly resembling N. affinis, Coreopsis filifolia, Chænostoma linifolium, Grindelia grandiflora, Calceolaria stricta, and Nymphæa scutifolia.

— "G. H. R." requests the insertion of the following question:—"Can any correspondent inform me the best way to get rid of slugs on outside Mushroom beds otherwise than picking them off by hand?"

— AT a recent monthly meeting of the NORTH OF SCOTLAND HORTICULTURAL ASSOCIATION in Aberdeen, Mr. J. Sim delivered a very interesting lecture on the Strawberry, in the course of which he remarked that the varieties grown in America have peculiar characteristics not common to British Strawberries, and he thought many of them should have a fair trial in this country. With reference to recent remarks by Mr. Gladstone on fruit-growing, he (the lecturer) considered it an industry more fitted for owners of the soil than for tenants, as two years' notice to quit would be required for any kind of fruit-growing, and five or six years for some descriptions. Large quantities of Strawberries are sent out from Aberdeen to other parts of Scotland, and to England and Ireland.

— GARDENING APPOINTMENT.—The following appointment has been made through Messrs. John Laing & Co., Forest Hill:—Mr. Ch. Fowell, late foreman to the Duke of Grafton, Euston Hall, as gardener to Ed. A. Ball, Esq., Rolls Park, Chigwell, Essex.

— A CORRESPONDENT writing respecting the EDINBURGH SHOWS in 1884, observes that "The Royal Caledonian Horticultural Society are to be congratulated on their arrangements for 1884. As an ordinary prize list theirs is the best I have seen issued. The total amount of £876 is offered in prizes. Well done, Edinburgh! It will no doubt be the ardent hope of every horticulturist that this substantial inducement to produce fruits, flowers, and vegetables of the highest quality will meet with the reward it so well merits. Collectively more is given in Edinburgh for vegetables than is offered at the Dundee International, and I am very glad to see that at each of the Edinburgh Shows vegetables will be well represented. In fact, I cannot understand the way this leading International of 1884 has ignored our kitchen garden produce. The newly introduced prizes for honey is an excellent addition to the Edinburgh list, and I hope to see many other societies follow their example."

— THE Paris correspondent of the *Daily News* remarks that "eaters of TRUFFLES, esteemed the greatest of French delicacies, are now terrorised by an extraordinary panic. It is familiar knowledge that they are often adulterated in various ways. It is hard to believe that lozenges of black cloth garnishing the cuticle of a turkey can be passed off as Truffles to any great extent, but harmless blackened bread crumbs, potato, and Turkish flour are often fraudulently introduced into the jackets of the Perigord black Potato, and are eaten with perhaps the remark that the Truffles of the year are wanting in perfume. Now it is alleged that ten general officers were taken very ill after eating Truffles at a Palais Royal banquet. The police have arrested a man who they say had a great manufactory of false Truffles at Versailles, and obtained the right perfume by means of an essence of a highly deleterious character. He awaits his trial, and meanwhile orders have been given to visit all shops and market stalls where Truffles are sold, and bring specimens for analysis to the municipal laboratory."

— THE GLASGOW AND WEST OF SCOTLAND HORTICULTURAL SOCIETY announce that their Shows for the present year will be held on March 26th and September 3rd, both in the City Hall, Candleriggs. At the first sixty-five classes are provided, the prizes amounting to £73 12s. 6d.; at the other 140 classes are enumerated, and the prize money £185 1s.

— THE monthly general meeting of the NOTTS HORTICULTURAL AND BOTANICAL SOCIETY was held at the Mechanics' Institute, Nottingham, on Thursday evening, the 21st inst., when Mr. J. H. Walker of Hardwick House Gardens, Nottingham, read a very interesting and exhaustive paper on "Mushrooms and Mushroom-growing." There was a crowded attendance of gardeners and others interested in horticulture. Mr. Chas. E. Pearson of Chilwell Nurseries occupied the chair. There were upon the table some splendid flowering Orchids, sent by Mr. Meadows, gardener to J. C. Cox, Esq., Basford, amongst them being a remarkably fine plant of *Odontoglossum Rossi* var. *majus*, carrying over eighty fully expanded flowers, and which was awarded the Society's certificate of merit. The same exhibitor had also a very highly coloured variety of *Dendrobium* "maxillare" (?) which was much admired. Samuel Thacker, Esq., the Vice-President, sent six fine forms of *Dendrobium* nobile and cut blooms of *Anthurium Andreanum*. Messrs. S. & T. Bar-

ratt of Rateliff-on-Trent had splendid bunches of the pretty *Clematis indivisa lobata* covered with its beautiful flowers.

— IN the paper on MUSHROOM-GROWING above noted Mr. J. H. Walker spoke of the possibility of distinguishing edible from poisonous Fungi, and said there was only one way in which the test could be applied with absolute certainty—namely, that by bringing to bear a thorough knowledge of the individual species and the situations in which they were grown. It was upon the so-called common Mushrooms that he wished to speak. The growth of these in their wild state was very uncertain, large quantities being found in one season where few or none were found in the previous year. Having stated that he had no doubt situation had a great deal to do with the nutrition as well as with the poisonous qualities of the Fungi, Mr. Walker observed, as a curious fact, that the common Mushroom (*Agaricus campestris*), which was so much eaten and esteemed in England, was prohibited from being sold in the public markets of Rome on account of its poisonous qualities, and he said he could himself testify to the fact of a fellow workman having been made seriously ill on two occasions through eating Mushrooms which were grown in close proximity to stagnant water. Having referred to the means of cultivation in vogue in Italy, Austria, and France, and mentioned that it was estimated that the value of Mushrooms grown in Paris alone last year amounted to over £89,000, the lecturer said Mushroom-growing in England had now become so simple that it was well worthy the attention of those who were engaged in agriculture and in horticultural pursuits, as the fact could not be overlooked that the continuous increase of the population would eventually demand a free development of the resources of the country. For this reason Mr. Walker expressed his opinion that the Mushroom would in the future occupy a most important place in the dietary of the English nation, and he then mentioned what in his opinion were some of the chief points connected with the indoor cultivation of the edible Fungus. A short discussion followed, and some questions were put to Mr. Walker, who replied to them. In the course of the discussion one speaker said he knew a person living in the neighbourhood of London who last year realised as much as £950 from Mushroom-growing, and who hoped this year to clear £2000 from this source.

— WITH regard to the notice of the meeting of the Notts Horticultural Society (page 109), it may be stated that a prize of £1 was offered for the best report sent to the horticultural papers. This was awarded to our correspondent Mr. N. H. Pownall, who worthily proposes, with the consent of the Committee, to re-offer it as two prizes of 10s. each to under-gardener members of the Society for the best two papers upon "THE ROTATION OF CROPS IN A KITCHEN GARDEN," to be illustrated by a plan, and not to exceed twenty minutes in reading. The subject will be very instructive and useful.

— THE INTERNATIONAL FORESTRY EXHIBITION, which will be opened in Edinburgh on 1st July next, is intended to include everything connected with, or illustrative of, the forest products of the world, and will be open to exhibitors from all countries. Applications for space must be sent in before 31st March. The Committee will endeavour to obtain from the various British railway companies special terms for the conveyance of exhibits to and from the Exhibition. Medals, money prizes, and diplomas for exhibits and essays will be awarded by competent jurors. Contributors to the Loan department are requested to communicate with the Secretary, who will supply special forms to be filled up by them. Free space will be given for workmen's approved models. Specimens will be shown of the various kinds of axes used for felling trees, as also of the different descriptions of machines for preparing the timber for constructive purposes. There will also be on view examples of textile fabrics manufactured from bark. The literature of the subject will be illustrated by reports of the schools of forestry in all parts of the world. Closely allied to this branch of the subject is the preparation of working plans, showing the age of plantations and the stage of growth at which cutting should be resorted to. The Loan collection of the Exhibition will, it is anticipated, prove one of the most attractive of all, including notable specimens of carving, wood-engraving, photographs, paintings of famous trees, and also sporting trophies from all parts of the world. Her Majesty has graciously consented to allow her name to be placed on the list of patrons, an example which has been followed by their Royal Highnesses the Prince of Wales, the Dukes of Edinburgh, Connaught, Albany, and Cambridge. The Lords of the Committee of Council on Education have been pleased very warmly to

commend the project, as likely to foster and encourage the spread of the knowledge of scientific forestry, and Her Majesty's principal Secretaries of State have accorded to it their hearty recognition and support. The Commissioners of Woods, the War Department, and the India Office propose to be exhibitors, and a consignment of colonial timber has already been forwarded from the Royal Gardens, Kew. As usual in such undertakings, a guarantee fund, which at the present date amounts to over £6000, has been started to insure the promoters against loss. The Executive Committee consists of the Marquis of Lothian, K.T., President; Sir James Gibson-Craig, Bart, Vice-President; the Lord Provost of Edinburgh; Mr. Hutchison of Carlisle; Dr. Cleghorn of Stravithie; Mr. Murray of the *Challenger* expedition; Mr. Skinner, City Clerk; Mr. F. N. Menzies, Secretary of the Highland Society; Mr. Dunn, Dalkeith Gardens; Mr. Methven, nurseryman; Mr. Park, engineer; Mr. Wenley, Bank of Scotland. Of these gentlemen, Messrs. Hutchison, Menzies, Cleghorn, and Skinner act as Honorary Secretaries; Mr. Wenley as Honorary Treasurer; and Mr. Cadell, formerly in the Indian Forest Department, has been appointed Secretary. The Offices are at 3, George IV. Bridge, Edinburgh.

ROSE MARECHAL NIEL.

THIS superb Rose is well worthy of the extended cultivation which it receives, and with the exception, perhaps, of the good old Gloire I know of none that so well repays the efforts of the cultivator, its great drawback being the shortness of its display of flowers, but during the flowering period I know nothing to equal it in beauty. I know a knotty cracked old specimen that last year yielded over a thousand flowers, and that with little trouble. Where the plant obtains its nourishment is somewhat of a mystery, as it is growing in an 8-inch pot plunged in a border about 2 feet wide, and none of its roots have been observed in the border outside the pot. If they have gone down perpendicularly after leaving the pot they must have found a rich feeding ground somewhere. It is budded on the Briar about 3 feet above the ground. This Rose well repays for cultivation in pots for early forcing, and that cultivation is remarkably easy. Whatever may be the case with some Roses this Rose grows and flowers as well on its own as on foster roots, and strikes as freely as a *Pelargonium*. Cuttings, which may be had in plenty as the plant ceases flowering, are best inserted singly in thumb pots, using good sandy soil and leaf mould or Mushroom-bed refuse. Place them quickly in a propagating frame in good heat. Bottom heat may be an advantage: it is not indispensable, and they will root in a month or five weeks, or some in less. I have had some rooted in three weeks, and others of the same batch have taken twice that time. When rooted they are taken out of the frame and transferred into 4½-inch pots as the small pots become full of roots; and here I may say that if any do not grow freely at this stage they had better be thrown away, as time spent in coddling a weakly plant is wasted. Employ a compost of sound loam with sand and decomposed manure. From the 4½-inch pots they may be transferred into 7-inch, using a good compost, and in these they may be allowed to remain till after flowering.

Our plants are kept in heat trained up the back wall of a lean-to Cucumber house till the roots have taken to the soil in the larger pots, when they are removed to the greenhouse and trained up the rafters, and with careful attention grow to the length of 9 or 10 feet by autumn, and after being rested and nailed to a south wall they can be readily forced. If bent down in the same way as young Vines every bud will start. After flowering they may be transferred to larger pots 10 or 12 inches in diameter, and in these they will grow well for several seasons if judiciously fed after the pots are full of roots. I have a large plant which has grown nearly three years in a tub that holds little more than a cubic foot of soil, and for the last twelve months or more this tub has been crammed with roots; yet the plant made several shoots last season varying in length from 5 to 10 feet and stout in proportion, beside a host of others of less dimensions, but all useful for producing flowers. All the assistance this plant had was a potful of weak liquid manure once a week.

This Rose does not seem difficult to suit in the matter of soil. Two of the most vigorous young plants I ever saw are growing in widely different composts. One is growing in a tub about 2 feet square by 1 foot deep, and was planted in sods freshly cut; the other is growing in mixture of clay and decayed garden refuse. Both are on their own roots and about the same age, and there is little to choose between them. I think that plants on own roots are nearly as liable to crack as worked

plants. I know two valuable specimens that commenced to crack in the main stem about 3 feet above ground. As soon as the crack was observed a box supported on stakes was placed round it and filled with good soil. Roots soon began to appear at the cracked part of the stem, and when the box was full the main stem was severed and the whole plant lowered till the box rested on the ground, when it was knocked away from the ball, which was planted in good soil, and the plant soon grew away as freely as ever. If the crack is situated so that boxing cannot be done, and the stem below is bare of shoots, a few buds may be inserted, and when they have taken the stem may be cut below the crack, which will cause them to start, and if the root is sound a good plant will soon be had. If there is a healthy young shoot below the crack it might be inarched into the stem above the faulty part, and a supply of sap again established. This mode of renewing the cracked stem of a fruit tree is successful, and I see no reason why it should not be applied to the Rose, but I have not tried it.

Some growers prune this Rose severely after flowering, some going to the length of cutting all growth back to three or four buds from the main stems. By this method strong growths are obtained, but the flowering capacity is lessened, as flowers are freely produced on the shorter growths which spring from last year's wood. I believe the only pruning needed is thinning out the weak growths as the plant becomes crowded. Bending down the strong growths as much as possible when growth has ceased for the season has the effect of causing every bud to break into flower in the coming spring, and also of sending strong growths out from the base of last year's wood, thus securing all the advantages of close pruning without its attendant sacrifice of valuable flowering wood. I believe it is necessary to bend down the wood early in winter, as I have never had such a regular break when it has been deferred till growth has nearly begun.—T. A. B.

FRUIT-TREE CANKER AND ITS CAUSES.

I SUSPECT that very few practical gardeners will accept the dictum of Mr. Hiam, on page 132, that the insects he found in the cankered portions of the Apple trees were the cause of the canker. There can be no doubt of the presence of the insects. They are found in all decaying vegetable matter quite regardless of the cause of its decay. One of the worst examples of canker I ever had to contend with was a Hawthorn Apple tree, not very old, but a very favourite specimen. This tree was also attacked with American blight, and was regularly dressed with Gishurst compound, and eventually with methylated spirits, until the insects were killed; but still the cankering of the branches continued on the old and young wood alike. The tree was taken up and replanted in good soil and the roots kept near the surface, the result of which was better growth and good fruit; but very severe winters following, the thermometer registering below zero, the canker became as bad as ever. In this case I am convinced the frost destroyed the tissue of the wood, and the inevitable result was gangrened branches. After the severe winters of three or four years ago I observed thousands of cases of canker on Apple trees that were previously free; and I am obliged to believe that if insects caused the canker they were brought by the severity of the winters. Does anyone believe that such was the case?—A YORKSHIRE GARDENER.

WITH regard to the notes published on page 132, tending to show that canker is due to insect agency, I have an impression that soil has, if not everything, at least very much to do with this annoying disease. I have it appearing on Apple trees less than two years from the bud, and young trees three to five years old are in some kinds subject to a form of canker that destroys them entirely. This is different from the canker attacking aged trees. I am inclined to believe that were we to keep the soil firm and the roots near to the surface we would hear less of canker. Then wet and frost has a tendency to bring on, or at least to exaggerate the disease, as we have found from the past severe season. As to Apricots, Mr. Crossling wrote of the larvæ of the Apple Clearwing destroying the branches of these. I have found the caterpillar at work in autumn, but am impressed with the belief that their feeding ground is in the already dead portion of the stem. At the present time I have been destroying caterpillars working between the dead bark and the cankered wood of the Apricot. Woodlice are quite commonly found in the same quarters. The form of Apricot canker which destroys large branches has done its work before the damage is apparent. Another form of the disease cuts off strong-growing branches, this through the rupture of the sap vessels. Cold easterly winds and hot days intervening I am afraid mean something not to the benefit of Apricots. I have been so impressed with the advantages of keeping the soil firm for fruit culture, that neither Currant, Raspberry, nor Gooseberry quarters are now being dug here. I intend to try Apples under the same conditions.—R. P. B.

READING Mr. Hiam's notes on the above subject in the Journal of the 14th of February, I should like to add a few words. I have tried to ascertain the cause of canker, and failed so far, our trees suffering much from it in this district. Undrained soil is not the

cause. I find Ribston Pippin as bad on light loam with a dry sandy subsoil as on gravel, and worse on well-drained land than it is on stiff loam with a clay subsoil. It is not caused by climatic changes, being quite as bad in mild winters and springs as in severe weather.

I do not think insects are the cause of the disease. A Pearmain tree is badly cankered in the stem on one side only, a portion of the bark about the size of one's open hand being eaten away; the rest of the bark, about two-thirds round, is, to all appearance, healthy, and supplying the tree with what nourishment it receives, the wood being dead right through to the living bark; it has been so for years. If insects are the cause, would they not have gone completely round the branch and killed it instead of commencing again higher in the same tree? As regards insects showing a preference for the best-flavoured sap, with us the Wellington is nearly as bad as the Ribston, and if the sap is flavoured anything like the fruit of the former I do not admire their taste. I mean to give Mr. Hiam's remedy a trial, and hope it will succeed, having been in search of a cure for a long time.

I have tried grafting healthy stocks and transplanting them every two years, keeping the roots pruned to prevent them reaching the subsoil, but canker occurs even then.—H. E. M.

ELECTION OF CARNATIONS AND PICOTEEES.

THE ELECTORS' RETURNS.

[The names of the raisers of the varieties in the following lists have been given in the previous returns.]

From Mr. JON. BOOTH, Failsworth, Manchester.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
Dreadnought
Mercury
Robert Lord
Edward Adams
William Spoor

Crimson Bizarres.

Master Fred
Lord Milton
Eccentric Jack
Graceless Tom
E. S. Dodwell
Jenny Lind

Pink and Purple Bizarres.

Falconbridge
Sarah Payne
Mrs. Anstiss
H. K. Mayor
James Taylor
Squire Llewelyn

Purple Flakes.

Dr. Foster
Squire Meynell
Earl Wilton
James Douglas
Juno
Squire Whitbourne

Scarlet Flakes.

Sportsman
Annihilator
John Ball
Clipper
William Mellor
Dan Godfrey

Rose Flakes.

Sybil
John Keat
Jessica
Cristagalli
Mrs. Dodwell
James Merryweather

PICOTEEES.

Heavy Red-edged.

John Smith
Brunette
J. B. Bryant
Mrs. Dodwell
Lord Valentia
Countess of Wilton

Light Red-edged.

Thomas William
Violet Douglas
Mrs. Hornby
Mrs. Bower
Winifred Esther
Elsie Grace

Heavy Purple-edged.

Zerlina
Mrs. Summers
Lizzie Tomes
Alliance
Fanny
Mrs. Niven

Light Purple-edged.

Ann Lord
Minnie
Mary
Clara Penson
Tinnie
Nymph

Heavy Rose-edged.

Mrs. Lord
Miss Horner
Fanny Hellen
Miss Lee
Edith Dombrain
Royal Visit

Light Rose-edged.

Mrs. Alleroft
Miss Wood
Miss Gorton
Bertha
Mrs. Nichol
L'Elegant

From Mr. W. MELLOR, Wakefield.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
Alfred Hudson
Edward Adams
Fred
George
John Hines

Crimson Bizarres.

Harrison Weir
J. D. Hextall
Jenny Lind
Lord Milton
Master Fred
Thomas Moore

Pink and Purple Bizarres.

Falconbridge
Sarah Payne
Squire Dodwell
Shirley Hibberd
Stanley Hudson
Unexpected

Purple Flakes.

Dr. Foster
James Douglas
Juno
Mayor of Nottingham
Squire Whitbourne
Squire Meynell

Scarlet Flakes.

Clipper
Henry Cannell
Sportsman
Thomas Woodhead
Thomas Tomes
William Mellor

Rose Flakes.

Electric Light
James Merryweather
John Keat
Mrs. Matthews
Mrs. Dodwell
Sybil

PICOTEEES.

Heavy Red-edged.

Brunette
J. B. Bryant
John Smith
Master Norman
Princess of Wales
Winifred Esther

Light Red-edged.

Clara
Elsie Grace
Mrs. Bower
Mrs. Garton
Thomas William
Violet Douglas

Heavy Purple-edged.

Alliance
Lizzie Tomes
Mrs. A. Chancellor
Mrs. Niven
Tinnie
Zerlina

Light Purple-edged.

Alice
Ann Lord
Her Majesty
Mary
Minnie
Master Nichol

Heavy Rose-edged.

Edith Dombrain
Lady Louisa
Miss Horner
Mrs. Payne
Mrs. Rudd
Royal Visit

Light Rose-edged.

Beauty of Plumstead
Ethel
Miss Wood
Miss Gorton
Mrs. Alleroft
Victoria

HINTS ON SOILS AND POTTING.

THE season has again arrived when potting plants is generally commenced, though I think that annual repottings in spring are not so much followed now as formerly. It is not, perhaps, desirable to enter too minutely into the details connected with potting plants. Hard-and-fast rules are quite as inapplicable to this phase of gardening as to any other; therefore it may be of more general service to state some of the main points in connection with the subject. It may be stated that many plants requiring annual or biennial repotting are best attended to in the early part of September or even earlier in autumn. Plants repotted at that season are established before winter, and more ready for a start in spring than if repotted at the latter season. But even when the system of autumn potting is carried out there still remain many plants to be attended to now. It will be a more convenient way to treat this subject by dividing it into two sections, first describing the soils and then the manner of potting.

SOILS.—Gardeners, and amateurs also, have much to depend on local surroundings for potting material. In my case for several years the best soil I could command was obtained from an old rubbish heap. I am glad to say that a more suitable material is given me now; but in the matter of peat soil, unless it is bought at a heavy rate, there is nothing fit to use in our locality. Most people who own a garden are more or less fond of it and its products; but not many like to purchase either turf or peat at the ordinary prices, and a gardener is much left to his own devices. I have proved that many plants will do fairly well in very ordinary material, provided it has not a tendency to become clogged and sour. The main safeguard against these evils when fibreless or clayey soils have to be employed is to make use of the smallest pots possible consistent with the size of the plants.

Another way I have seen tried, but which I do not follow myself and therefore do not recommend, and that is to mix a large proportion of rough leaf soil, rough dung, and sand with the soil and pot rather loosely. Such mixtures invariably become sodden after a lengthened period in use, and the quality of the roots formed even in its best condition readily decay. The quality of growth is also deficient in that firmness of quality so necessary to insure continued healthiness. As a rule, I hesitate to employ leaf soil and decayed manure in conjunction for any plants, and would only do so for those required to make a very rapid growth, and which are likely to be thrown away after that growth had been finished. The only manures I use are half-dried cow manure in a condition to rub down into fine flakes, and horse droppings prepared as for growing Mushrooms. Sheep manure in a half-dried condition is also suitable.

Though I am able to get plenty of good turf for potting, I do not use that for every plant. Turf has the one fault of being too quickly exhausted in the case of plants which have to grow in one pot and continue flowering for a long time. For instance, we employ no turf for Chrysanthemums, winter-flowering Pelargoniums, nor Carnations. These do much better, though the growth is not so strong, in fibreless loam with a good proportion of cow manure added. When sand can be dispensed with it is also better omitted. I seldom use it. Doubtless roots are more freely produced where open sandy composts are used, but a compost in which roots are formed in moderate proportional number with the top growth is much better than using one which is too rapidly taken possession of by the roots and at once exhausted. These open composts are the worst for holding applied manures. I have occasionally bloomed winter-flowering Pelargoniums, which were potted in the summer, from

October through the winter and spring on to the next October with the aid of occasional surfacings of fertilisers. Last autumn one of the cottagers here showed two plants 3 feet across and covered with trusses, which had flowered in our hothouses all the winter and were given to him in spring, and which he kept in the same 6-inch pots.

A compost the most conducive to rapid growth is one formed of turfy loam and good fibrous peat. For growing rapidly into specimens such plants as Ferns, Tea Roses, many stove and greenhouse plants, nothing can be better than the above. When fibrous peat cannot be obtained the roots of such vigorous-growing Ferns such as *Lastrea dilatata* or *L. Filix-femina* are very suitable. For mixing with composts for many plants crushed lime rubbish is better than sand. Bones are a very good fertiliser, and the best form to employ that in is as bonemeal. Crushed bones and half-inch bones do not act so quickly; and although roots may be found clinging to these, that is more a proof of their being conservative of moisture than that the plants are deriving food from them in any quantity. Pure leaf mould I use for many plants that are to be grown only a short time in pots and then turned out—such, for instance, as bedding plants and ordinary Dahlias. Amateurs are often fond of experimenting, and one showed me last spring some good *Calceolarias* thriving in ordinary moss lifted from the base of a forest tree. Sphagnum is a very good substitute for peat for potting stove plants. *Alocasias*, *Anthuriums*, and plants of that description thrive well in pure sphagnum. Either sheep-droppings or cow manure should be used as surfacing about three times through the growing season.

As a rule it is safest to employ simple composts. It will invariably be found that when a plant has to be a long time in one pot, and to bear therein a crop of fruit, as in the case of Strawberries or Pine Apples, or a continued succession, or a large crop of flowers, as in the case of *Chrysanthemums* or *Pelargoniums* in winter, then a very simple compost is a necessity.

POTTING.—Pots, it may be said, are a necessary evil, though any plant grown in pots may be as well or better, and certainly more cheaply grown in beds or borders. That, however, is not always convenient, and therefore we are compelled to use pots. For the everyday gardener, whether professional or amateur, the great point to be considered with regard to plant-growing in pots is the best means of getting the greatest amount of plant food possible within their very contracted limits. First of all drainage may be mentioned. No rule can be laid down as to how much drainage should be given to a plant. I may merely place a piece of broken pot over the outlet of a 6-inch pot, if I use leaf soil simply; or if the plant is to be only a short time in the pot, as in the case of a Tomato or a Dahlia, but with a Fern, a *Pelargonium*, or a *Primula*, the case is different. Coal cinders are preferable to potsherds for draining most pots, except the very largest sizes usually employed for stove and greenhouse plants. For large pots it is decidedly the best system to give abundant drainage. Of two plants, one in a deeply drained pot, the other with little drainage, the chances are all in favour of the better drained pot producing the healthier plant. The soil ought to be in such a condition that if a portion is squeezed in the hand it will readily crumble into loose soil again at a very slight touch. Dryness is bad, wetness is worse. In the state above indicated as most suitable, it is a safe plan to cram as much of it into a pot as possible. Certainly the growth will not be so luxuriant as if a looser mode of potting were followed, but in the long run it will be found that firm potting followed out as a rule will give the best results. Small pots with firm potting is the simplest and most certain way of laying the foundation of healthy plants. These few principles will be found a sufficient guide for beginners who with a love for their work require a guide to mark their way.—R. P. BROTHERSTON.

VINES BLEEDING.

As far as my experience goes on the above subject I fully believe that Vines which bleed to any great extent are much weakened for the ensuing crop. In the earliest house of Black and Golden Hamburgs here last year's observations convinced me of the above statement. The Vines were pruned in the last week of November, and their age as near as I can guess is ten or twelve years. One Black Hamburg had four strong main rods, and to give them more space we took out the oldest rod of the four, cutting it about 2 inches from the juncture. The diameter was fully 2 inches where it was cut. The Vines were started in the last week of January, all seeming to break the same and make the same progress till they were bursting into leaf, when the Vine under notice showed signs of weakness; but as there was a stage along the front of the house filled with plants the wound was hidden below the stage, as they are planted inside. There was little done to discover the weakness till it was plain that something was

wrong, when it was found that it had been bleeding severely for some time, but I cannot say the date at which bleeding commenced, but it continued its exhausting work for ten or fourteen days after our notice. The result was weak wood and small bunches, about three weeks later in ripening than the others in the same house. It may be also stated that the Vine under notice was at the coolest end of the house, and that might have caused it to be a little later, but it would not have impaired its strength.—J. S.

DIARIES AND BOOKS FOR GARDENERS.

A WELL-KEPT record of the daily work done in gardens, with notes on the results of past work and the condition of plants and crops, is of the greatest importance to both old and young gardeners. There are so many forms of diaries now to choose from that any person can select one to his own particular taste. I prefer to obtain a large foolscap scribbling book containing about 300 pages, and prepare it as follows:—About fifty-two pages are selected at the end of the book; these are marked with the letters of the alphabet in red and blue ink on the margins of the leaves. Two leaves, or four pages, are allowed for each letter. After the first letter "A" is marked a strip is cut off the two pages the width of the letters, and the next letter "B" marked, continuing thus until the whole of the letters of the alphabet are printed. This method is employed for special notes, as for example, "Early Peach house started January 1st, 1884." Now, as "Peach" is the subject referred to, I should place my thumb on the letter "P" on the margin, open the book at that place, and enter the note. By the adoption of this simple method I can refer to notes on any particular subject at a moment's notice without having to wade through the matter in the full and general portion of the diary.

I have two books, one for the farm and one for the garden, and can refer to these as easily as an index to a volume. Then I adopt one page of the garden book to a table of outdoor temperatures. It is arranged in columns thus:—The first column on the left-hand side is for the date of the month; following this are two columns, maximum and minimum, for each month, with the name of the month neatly printed over each pair of columns. The temperatures of the first day in each month are thus given in parallel columns, and so on throughout the year. The preceding pages of the book are devoted to a full description of whatever is done during the day, with observations thereon. It will thus be seen that a diary of this kind is a complete vade mecum of useful and interesting matter. I have kept such a diary for many years, indeed ever since I commenced my gardening career, and have always found it a source of pleasure and profit in doing so.

Having briefly referred to the question of diaries, it may possibly be of service to some of the younger readers of the Journal to name a few books on gardening that have been found useful, and which may soon be obtained by those who do not spend their money in the frivolous customs of life. Amongst other works the following are strongly recommended to form the nucleus of a gardener's library:—Johnson's "Cottage Gardener's Dictionary;" Dr. Hogg's "Fruit Manual;" "Vines at Longleat;" Fawkes' "Horticultural Buildings;" Burbidge's "Cultivated Plants;" Smith's "Ferns: British and Foreign;" Lindley's "Theory and Practice of Horticulture," and "Vegetable Kingdom;" Williams' "Stove and Greenhouse Plants," two vols.; and "Orchid Growers' Manual;" Thompson's "Gardener's Assistant" (new edition); D. Thomson's "Handy Book of Fruit Culture under Glass," and "Handy Book of the Flower Garden;" Veitch's "Manual of Coniferæ;" "The Farmer's and Gardener's Reason Why;" Johnston's "Agricultural Chemistry;" Sutherland's "Handy Book of Herbaceous Plants;" Robinson's "Alpine Plants;" Douglas's "Hardy Florists' Flowers;" Sutton's "Culture of Vegetables and Flowers;" Masters' "Botany for Beginners;" Loudon's "Self-Instruction to Young Gardeners," and if possible a copy of his "Encyclopædia of Trees and Shrubs." Those who desire to strive for self-improvement will find Cassell's "Popular Educator" of great value. I can boast of a much larger and more varied library of useful works than the foregoing list, and nearly all purchased with cash saved by exercising self-denial in the luxuries that too many young men indulge in. The study of British entomology and botany are worthy the attention of young gardeners during the spring, summer, and autumn months, as it affords a very pleasant and instructive pastime. During winter the long evenings may be profitably employed in study, and to relieve the monotony of such occasionally fret and solid carving will be found a pleasant amusement. We can look back on many pleasant reminiscences of both life in the shape of dried collections of wild flowers, insects, and fret-carving.

These notes are penned with a view to assist those of your numerous readers who are yet in their probationary stage, and if they should prove useful I shall not have written in vain.—A YOUNG HEAD GARDENER.

BEAUCARNEA RECURVATA

BEAUCARNEA RECURVATA, sometimes known also by the name of *B. tuberculata*, is an exceedingly ornamental plant. The genus *Beaucarnea* is of somewhat recent introduction, and belongs to the order Liliaceæ. At present there are but few species known, but those with which we are acquainted are all natives of the temperate regions of Mexico. *Beaucarneas* are remarkable for the bulb-like swelling at the base, and an arborescent stem. The swollen base in the species we here figure is nearly smooth, but in some others it becomes rough and woody,

resembling somewhat the Elephant's-foot plant (*Testudinaria elephantipes*) of the Cape of Good Hope.

As an ornament to the conservatory, for giving a tropical effect to the outdoor garden during the summer, or for hall decoration either in summer or winter, there are few plants to excel *Beaucarnea recurvata*, its ample spreading head of long, drooping, dark green leaves affording a

mostly in their wants and requirements being very imperfectly understood, and their rarity and consequent high money value has prevented their owners from experimenting much with them.

I have had a great number of these plants under my care both in a large state and as seedlings; I shall therefore conclude these remarks with a brief summary of my mode of management, which has been very

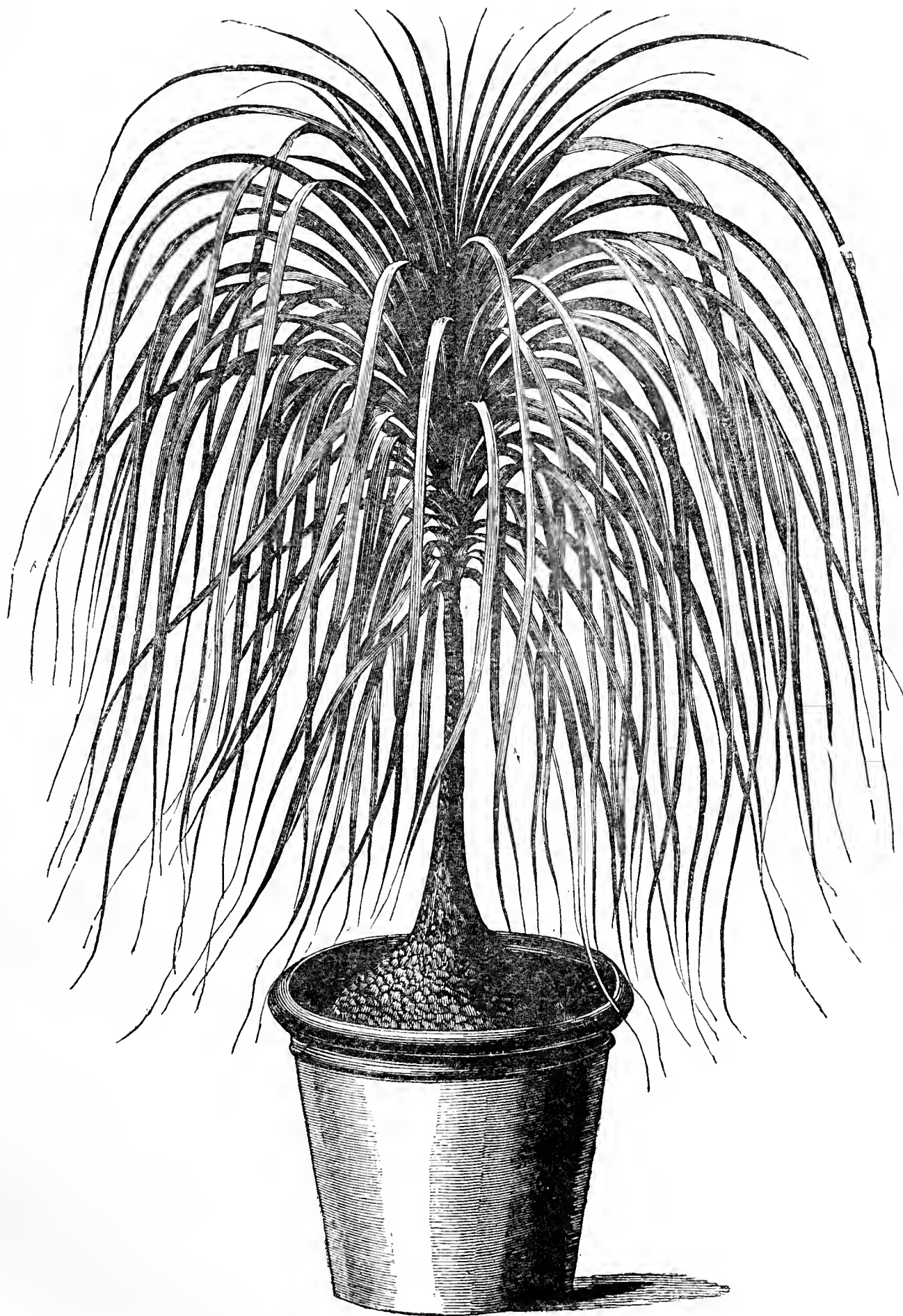


FIG. 33.—BEAUCARNEA RECURVATA.

contrast which we seek in vain in any other plant. It is frequently remarked by both amateurs and gardeners that *Beaucarneas* have a grotesque but not an ornamental appearance. That such should be the case, however, is entirely the fault of the cultivation. Treat them liberally, and an ornamental, graceful, spreading crown of leaves will be developed; starve them, and they become simply ugly. This peculiarity is not confined to the genus *Beaucarnea*, but applies more or less strictly to nearly all the plants we have in cultivation; the fault lies

successful. I find that even in quite a young state, say when only a few months old, the plants begin to assume the bulb-like character at the base; but I am not able to arrive at any satisfactory conclusion as to how long it takes to form such a plant as that represented, but I should imagine it would be about fifteen years from seed, providing the plant received uniformly liberal treatment. The soil should be rich fibrous loam, with a liberal admixture of sharp river or silver sand. Special attention must be paid to the drainage, which must at all times be in

perfect order. The treatment for old plants should be during the summer, if standing in the conservatory, full exposure to the sun, and an abundance of water. I repeat the words, an abundance of water, for the plants may be almost kept with their roots in the water and their heads in the oven. As autumn comes on gradually withhold water, until, upon the setting-in of winter, you may entirely stop the supply, and keep the plants quite dry until the sunny days of spring again set them in motion. I prefer growing young seedlings in more heat, and not drying them quite so much until they get a few years old, when they may be placed upon the same footing as their elder relatives.—E. C.

PEACH TREES AT WILTON.

LEST Mr. Simpson should think me discourteous, I beg to say, in reply to his remarks in reference to what has been written about these trees, that until the trellises were fully covered the extension system of training was practised, and the same method would have been followed had the trellises been four times as large. When the writers referred to by him saw them, they had neither been winter-pruned nor root-pruned, nor do I think there will be much necessity for either of these operations at present, as the annual crops of fruit they have borne have counteracted to a great extent the tendency to form exuberant growth. Should the necessity arise I shall not hesitate to root-prune and apply such materials to the borders, and provide such an atmosphere, as will assist in preventing too vigorous growth.

In respect to branch-pruning, I have endeavoured to avoid the necessity for this operation in winter by frequent and timely pruning during the period of growth, a practice which I think is peculiarly advantageous in the management of all stone fruit trees. True, this method entails increased labour at the busiest season, and in these days of restricted labour it is with great difficulty that they can always be performed at the proper moment; but where they can be there is no difficulty in placing a branch where, and only where, it is required, and so avoid to a great extent the necessity for winter pruning. The labour at my command will not permit of this work being performed always at the proper time, consequently these trees are not by any means so perfect as I could wish, nor so good as I fear the reports of them have led some readers to believe.

The credit of first using the transverse trellis has been wrongly ascribed to me, although I may have been the first to apply it on a large scale and in early forcing houses. My reasons for doing so were not so much for the purpose of carrying out the extension system of training as to secure great variety, lengthened and continuous supply of fruit, and a total increase of training space without in any way obstructing the requisite amount of light and heat on the back wall, on which Fig trees are trained. These cross trellises give exactly 109 square feet of space for each tree, which I am aware is small enough. Twelve trees can be planted by fixing double trellises under each rafter 8 inches apart, and the total training space thus secured is nearly three-quarters more than would be obtained by a longitudinal trellis.

From two similar houses we have, during the last three years, succeeded in obtaining an almost daily supply for five months by commencing with Early Beatrice Peaches in the end of April, and finishing with Walburton's Admirable Peaches and Victoria Nectarines in September. I beg to thank Mr. Simpson for his friendly invitation, which I hope some day to be able to take advantage of; in the meantime it will afford me great pleasure to see him at Wilton. He must, however, not anticipate seeing such perfectly trained trees as I fear he has been led to expect.—T. C.

CRINUMS.

It may be said with some truth that numbers of beautiful bulbous plants are never likely to prove satisfactory under cultivation in this country owing to its being apparently impossible for us to provide the requirements necessary to their health. Certainly a better knowledge of the nature of some of them has enabled us to succeed where success once appeared impossible, and this may be taken as hopeful promise of still more of the rarer bulbs proving satisfactory when their peculiar requirements in respect of heat, light, and moisture are better understood; but that many others ever will prove serviceable garden plants seems with our present knowledge almost beyond hope. The Crinums, however, do not fall in this category. They are, generally speaking, the easiest to manage among tropical and temperate bulbs, so that in the threescore or more species of which anything is known we have a large number of beautiful and easily grown plants, worthy of considerable favour wherever bulbous plants are grown. The species of Crinum known and grown in this country do not comprise all nor yet half of the number above mentioned; but when once the demand for them increases we may expect to see some of our enterprising plant-collectors turn their attention to un-introduced Crinums.

Now-a-days it is customary to inquire into the capabilities of plants for hybridising purposes, and the greater the promise of their proving plastic in this respect the more the importance and value attached to them in a horticultural sense. So far as is known, the whole of the Crinums cross freely with each other.

Dean Herbert, whose labours among the Amaryllis family enabled him to produce a work upon them which for interest and valuable information is one of the finest botanico-horticultural books ever written, devoted much time and attention to hybridising and crossing different plants; in fact, it may be said that to him we are indebted for the magnificent forms of Gladiolus and Hippeastrums we now possess, for he was the first to experiment on the original forms of both these genera with a view of raising improved races. Writing upon Crinums he said, "It is almost certain that the fertility of the hybrid or mixed offspring depends more upon the constitutional than the closer botanical affinities of the parents. The most striking and unanswerable proof of this fact was afforded by the genus Crinum, which is spread round the whole belt of the globe within the tropics, and within a certain distance from them, under a great variety of circumstances affecting the constitution of individuals, which nevertheless readily intermix when brought together by human agency." The importance of this statement will be at once seen by those who understand the art of hybridising. What has been done with the Hippeastrums seems achievable in the case of the Crinums; for both in the variety of form and colour of their flowers, the habit and nature of the plants of this genus, there is abundance of material out of which excellent garden plants could no doubt be produced. It seems reasonable to attribute the little attention paid to Crinums to a lack of knowledge of their beauty, usefulness, and capabilities. If once they be thoroughly understood and properly put to the test, the result must be a great gain to cultivated bulbous plants.

The species of Crinum represented in gardens do not number more than a dozen, if we exclude what are known only in botanical collections. At Kew there are about thirty species and a dozen or so varieties, and as these include both tropical, temperate, and hardy sorts, the flowering seasons of which extend over the whole year, it is seldom that there are not some in flower in that establishment. Of those to be met with more or less in gardens generally, the following perhaps comprise the whole, exclusive of varieties and erratic names which always exist in garden nomenclature.

C. amabile.—The bases of the leaves in this species fold tightly over each other, so as to form a neck or stem about 18 inches long. The leaves are about 3 feet long, pale green, and curving over. A healthy plant bears from thirty to forty leaves together. It is evergreen, and bears in December a long-stalked umbel of white sweet-scented flowers, as many as forty of these flowers being borne in one umbel. On the under side of the segments of the flowers there is a stripe of bright red. Each flower is about 8 inches in length, the segments being half an inch wide and curving downwards. The stamens are red. Being a native of Sumatra this species requires a tropical stove temperature.

C. americanum.—The bulb is short-necked, as large as a Belladonna Lily bulb. The leaves are from 2 to 3 feet long, and number about ten on a healthy bulb. The flowers are very fragrant, pure white, and are borne in sixes on a stalk about 2 feet long, each flower measuring some 8 inches in length, with spreading lance-shaped segments. A beautiful species, and almost if not quite hardy in the south of England. It is well established in a border against a house in the Glasnevin Botanic Gardens, and is also planted outside at Kew. Commencing to flower in the summer, it continues to produce its sweet-scented blossoms until cut down by frost. A native of the southern States of North America.

C. angustifolium.—The Australian representative of the last-mentioned; distinguished, however, by its shorter leaves, flower stalk and flowers, and by the latter being tinged with red on the under side. It is a tropical species, preferring a dry sandy soil and a rather dry atmosphere. The flowers, which are scentless, are produced in summer.

C. augustum.—The bulb of this when fully developed measures a foot in length and about half that in diameter. The leaves are between 2 and 3 feet long and 4 inches broad. The flattened flower scape is produced from the side of the neck of the bulb, and is nearly 3 feet in length, bearing an umbel of between twenty to thirty flowers, which are 4 inches long, bright red on the outside, and white tinged with red inside. It is found in the swamps of Seychelles and Mauritius, so that it requires stove treatment with us. The flowers are produced in early summer, and last about three weeks.

C. campanulatum.—Often known is *C. aquaticum*. It is a native of South Africa. The bulb is egg-shaped and as large as a swan's egg. In foliar and floral characters it resembles *C. americanum*, differing in the purple colour of its flowers and

their shorter length. It is a beautiful species, and thrives well in a cool greenhouse. It flowered at Kew last year.

C. capense.—Sometimes called *Amaryllis longifolia*; a common Cape species, and is one of the best known in this country. Planted in a well-drained and sheltered border it grows and flowers freely all summer. There are two forms of it, a red-flowered and a white-flowered one. The bulb is *Amaryllis*-like, with a short neck, and the leaves from 3 to 4 feet long. The flower scape is 18 inches long, and bears an umbel of from six to twelve flowers, which are from 3 to 4 inches in length, the segments being about an inch wide. Herbert says of this plant "It is a very hardy species, endures the winter, and flowers in profuse succession during five or six months in a bed covered with leaves in the winter. It delights in wet, and will flower in a pond. In a warm situation it may remain always in water." As a companion to the *Belladonna Lily* in borders out of doors the two varieties of this *Crinum* will be found exceedingly useful.—W. W.

(To be continued.)

THE PINE APPLE NURSERY, MAIDA VALE.

MESSRS. E. G. HENDERSON & SONS' nursery in the Edgware Road has for many years been one of the most noted of London trade establishments for plant-growing, and there appears great probability that under the present energetic management its prestige will be still further increased. The almost innumerable glass houses have been long devoted to an extensive collection of miscellaneous plants, but special attention is now being paid to the more popular and useful classes of plants, though all the meritorious rarities are carefully preserved. Large stocks of young plants are being raised in all departments, several new houses have been erected and others are about to be commenced, while in the outdoor department the fine collection of hardy plants has been advantageously re-arranged. Other improvements are under consideration, and the general aspect of the nursery indicates a most pleasing and vigorous activity. A few notes upon the chief features will enable readers to form an idea of the collections.

ORCHIDS.—These have deservedly received a considerable share of attention for some years past, and many thousands of the most useful and choice cool and tropical species and varieties are now grown. *Odontoglossums* have several houses devoted to them, such established favourites as *O. Alexandræ* and *O. cirrhosum* being represented by numbers of the best varieties obtainable; the plants being almost without exception in robust health and showing and bearing abundance of flowers. The charming little dwarf *O. Oerstedii*, which continues for so many weeks in flower, is in capital condition, and is certainly one of the best of the small-flowered type. *Masdevallias* are in strong force, especially *M. Lindenii*, *M. Harryana*, *M. Shuttleworthii*, and *M. Veitchii*, while some of the smaller and less conspicuous forms, such as *M. triangularis*, are interesting; but the most remarkable of all in regard to numbers and profusion of flowers is the white *M. tovarensis*. Of this useful Orchid one house contains some hundreds of plants as healthy as could be desired, not a sign of "spot," and quite a sheet of bloom, some of the spikes bearing three or four flowers each. Either for effect or cutting, this is an indispensable plant in any collection of Orchids. *Cattleyas* and *Lælias* are in vigorous health, showing sheaths abundantly and promising a fine display later in the season, though many of the *C. Trianae* section already brighten the houses with their richly coloured flowers. Three span-roofed houses with open stages over large tanks of water are principally occupied with *Dendrobies*, *Phalænopses*, and *Cypripediums*, the latter being exceedingly good; the growths stout and of that fresh healthy green tint which is so pleasant to the eyes of an Orchid grower. Other houses are devoted to miscellaneous collections of *Aerides*, *Vandas*, *Trichopiliæ*, *Sophranitis*, and all the principal genera.

PALMS.—A dozen or more of the really useful Palms that have been proved to be of substantial decorative value are grown by hundreds, and a most satisfactory stock of young plants is now steadily advanced. The indispensable and graceful *Cocos Weddelliana*, the much-enduring *Seaforthia elegans* and *Areca lutescens*, the sturdy *Phoenix reclinata*, and the beautiful *Kentia Fosteriana* and *Canterburyana*, occupy several houses, and are chiefly about the size most suitable for decoration. Moreover, as they are not grown in the steamingly high temperatures too frequently accorded to Palms, their leaves are of firmer texture and better capable of enduring changing temperature, dry air, and exposed positions of rooms, corridors, &c.

FERNS.—The *Todeas* at Pine Apple Place, it is well known, are always alone worth a visit, and they are just now preparing for the production of their annual handsome crowns of young fronds. *Adiantums*, *Pterises*, *Davallias*, and other favourite genera are represented by thousands of plants in all stages, from the "spore pan" to exhibition specimens. Several novelties are included, but particularly good is a pretty variety of our true Maidenhair Fern, *Adiantum Capillus-Veneris gracilis*, which is distinguished from the type by its larger and more compact fronds and closer neater habit. It is to be sent out this spring, and will no doubt receive the favour of many Fern-lovers. *Selaginellas* are receiving much attention, the number of species and varieties being very large for a trade collection. Many beautiful forms of these plants are much neglected in gardens, and except a few of the *S. Kraussiana* habit comparatively few are generally

grown, yet *S. hematodes* and others of the erect or frondose group are rivals of some of the most elegant of Ferns.

MISCELLANEOUS PLANTS.—The general stock comprises greenhouse *Rhododendrons* of all the standard varieties now being rapidly increased, double *Primulas*, one of the finest collections of varieties and plants, Tree *Carnations*, *Passifloras*, *Camellias*, *Marantas*, *Bromeliads*, and scores of other stove or greenhouse plants, most of which have houses specially devoted to them. *Imantophyllums* are numerous, some of the specimens are of considerable size, and showing flowers in large numbers. *Blandfordias* are well grown, the varieties being remarkable for the rich colour of the flowers. In one house specimens of a pretty little plant are growing in small pans suspended from the roof, and though as yet in an infantile stage they are likely to become extremely ornamental. This is honoured with the somewhat lengthy title of *Saxifraga sarmentosa tricolor superba*, and differs from the tricolor known in gardens by the leaves possessing an unusually broad pure white margin, which contrasts very agreeably with the bright rosy young leaves, and the emerald centre of the older ones.

The occupants of the large conservatory have been re-arranged with praiseworthy taste, and some artistic additions have been made to the rockery, which have greatly increased the beauty of this handsome house. Every department, in fact, affords evidence to the practical skill brought to bear upon the work by the experienced manager, Mr. Hollands, who has already done much to increase the fame of the establishment in the horticultural world.

ELCOMES REGISTERED IMPROVED FUMIGATOR.

MR. ELCOME of Woodland Road, Upper Norwood, sends us one of his new fumigators, which is represented in the annexed figure. Its claims, as enumerated in the prospectus, are "simplicity in construction and economy in operation, as it will burn any sort of

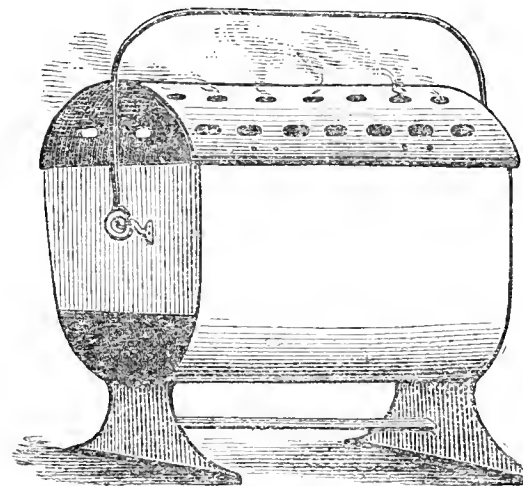


Fig. 34.

tobacco paper, rag, or card, without attendance, in close frames or greenhouses." Several gardeners who have tried the fumigator testify that it has given them great satisfaction. It appears to be a handy, light, yet durable article, and we see no reason that it should fail to accomplish the purpose for which it is designed.

MANCHESTER HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.

At the fortnightly meeting of this Society, recently held in the Old Town Hall, King Street, Mr. Bruce Findlay, the President, in the chair, there was a large attendance.

Mr. W. Nield read a paper on "The Apple," which, he said, is unquestionably the best and most useful of all hardy fruits. Though it possesses many good qualities, the Apple has not received from those who till the soil anything like the amount of attention to which it is justly entitled. According to the agricultural returns for 1883 there were in England 185,782 acres of land planted with fruit trees. If 35,782 acres, a liberal estimate, were deducted for land planted with Pears, Plums, Cherries, and Filberts, there remained 150,000 acres devoted exclusively to the cultivation of Apple trees. About seventy standard Apple trees can be grown on an acre, so that the total number of trees would be 10,500,000. There are probably as many Apple trees grown in hedgerows and farm orchards, not returned as such, and market gardens, as are grown on all the land specially devoted to their cultivation. This would bring up the total number of Apple trees to 21,000,000, or nearly one for every individual in England. If one-half is deducted 10,500,000 trees still remain, and, assuming each tree to bear two bushels per annum, the yearly crop would amount to 21,000,000 bushels, the market value of which at 4s. per bushel amounts to £4,200,000. Supposing the trees to be grown in 150,000 acres, the annual value of the crop would be £28 per acre, which, with good cultivation and a better selection of sorts, might easily be doubled. In fact he did not know of any purpose to which the land could be put which would bring in so large a return for the capital employed, if farmers and market gardeners only knew how to go about it. He pointed out that demand for raw fruit is increasing in a greater ratio than the population. We have now from 3000 to 5000 different names for Apples, though he very much doubted if we have anything like that number of varieties in cultivation. The greatest number of sorts ever collected together was at the recent Apple Show held a short time ago in London,

when 1800 named varieties were exhibited, and 900 of these were afterwards shown in Manchester and Birmingham. Mr. Nield then gave some useful suggestions as to the cultivation of Apples. It is his intention to publish the paper in book form.

The Chairman, Mr. F. J. Broome, Mr. Birkenhead, Mr. Richard Astley, Mr. Thomas Worthington, and Mr. Plant took part in the discussion which followed. Some severe strictures were passed by several of the members on Mr. Kynaston's pamphlet on "Out-door Fruit for the Million."

Mr. Plant remarked that practically what Mr. Kynaston had written in his pamphlet was worthless and absurd, and it had been the cause of much unpleasantness between gardeners and their masters and mistresses.

The Chairman said the views set forth in Mr. Kynaston's book were misleading, and those persons who had the slightest faith in those views possessed a very superficial knowledge of the subject.

Mr. W. Swan, the Honorary Secretary, said he would have liked each member to have brought to the meeting a few Apples grown in his particular district, so that the members might have decided which were the best varieties that could be produced in the vicinity of Manchester. He suggested that the names of the varieties should be sent to him in order that he might submit them to the next meeting.

NOTES ON ORCHIDS.

DENDROBIUM WARDIANUM.—Calling a day or two since upon Mr. Keeling, the able gardener at Mount View, Sheffield, I was shown a remarkably fine display of this beautiful Orchid coupled with a large general collection of other Orchids, such as *Phalenopsis*, *Cœlogynes*, *Odontoglots*, *Cattleyas*, *Oncidiums*, &c., now in bloom. The plants of *D. Wardianum*, numbering over fifty, are mostly in full bloom, and a large proportion of them are very strong pieces, having each six to ten strong breaks with four to six flowering growths, many of which are 4 feet in length, and on one growth I counted thirty-one blooms. Among them are some very fine varieties with blooms 4 inches in diameter. One especially I noticed, being very heavily tipped on the sepals and petals with a bright magenta-crimson, the lip also beautifully coloured. The plants are nearly all grown in baskets suspended from the roof with the flowering growths hanging in a natural manner, in which position they are much more effective and beautiful than when grown in pots and the growths stiffly tied to stakes. Mr. Keeling also finds that with him the growth is much more satisfactory in baskets than in pots.

ONCIDIUM SERRATUM.—In the same house with the *Dendrobes* is a plant of *Oncidium serratum* with a branching spike of flowers over 16 feet in length, and carrying upwards of fifty blooms. The flower spike is suspended to the roof immediately over the pathway, and has a very striking effect.

PHALÆNOPSIS SCHILLERIANA.—Flowering very profusely are several plants of this fine Orchid. One of them, carrying two flower spikes with twenty flowers on each, has produced a young plant with a leaf 8 inches long upon one of the spikes at about 18 inches from its base.

Cœlogynes are very fine, especially a pan of *C. cristata* *Lemoniana* with twelve spikes of six and seven blooms each. Especially noticeable also are some beautiful highly coloured varieties of *Cattleya Trianae*, with a fine collection of *Odontoglots* and *Masdevallias* now in bloom. A large span-roofed house about 60 feet by 20, built by Messenger, is very gay with a fine collection of bulbs (*Hyacinths* and *Tulips*), *Cinerarias*, *Cyclamens*, and *Camellias*, making with the Orchids a combined display of choice flowers such as is rarely seen, and of which the spirited proprietor (D. Ward, Esq.) and his gardener may feel justly proud.—W. K. W.

ODONTOGLOSSUM ROEZLII.—This and its variety *alba* are amongst the most beautiful and useful Orchids we have for cutting. It is very graceful for vases, also for personal adornment. Good-sized plants may be grown in 5 or 6-inch pots. Those who possess half a dozen plants or more can generally find a spike or two amongst them, for they produce flowers more or less all the year round. To keep this *Odontoglossum* in good health it must be grown warmer than the *crispum* type: 60° to 65° as a minimum temperature, 5° extra as a maximum, with a proportionate rise in summer and abundance of light, but not direct sunshine. It must never be allowed to become dry at any time of the year, and when in full growth it will require a large supply, also damp well between the pots twice a day. A good guide with this class of *Odontoglot*, as well as those that belong to the *O. crispum* type, is to supply sufficient water to keep the sphagnum in a healthy growing condition, and the plant will generally be the same. The sphagnum must not be allowed to overrun the bulb, or it will cause the stem to damp. A good guide I find is to supply water when the tips of the sphagnum have a white tinge on them, but not a parched appearance. The water should be applied through the rose of a syringe, as it can be given more regularly than with a watering pot. The best

season for repotting this *Odontoglot* is November. Thrips are a great enemy if allowed to gain headway; it disfigures its beautiful foliage very much. On the first appearance of the pest it should be dipped in a preparation of nicotine soap.

ODONTOGLOSSUM VEXILLARIUM.—This requires the same treatment as *O. Roezlii*, except that the temperature which should be lower: 50° to 55° as a minimum in winter, with 5° extra by fire heat for the day temperature, with proportionate rise in summer. Although these Orchids do not like a close atmosphere they must not be exposed to draughts, which would be fatal to their well-doing.—A GROWER.

LYCASTE SKINNERI.—Is it an uncommon occurrence for *Lycaste Skinneri* to produce twin flowers on one spike? The second this season is just opening with me, and I do not remember to have seen this before. The plant which is flowering just now has the flowers curiously blotched and marbled.—R. P. B.

PHAIUS GRANDIFOLIUS.—This deserves to be largely grown; and flowering as it does just now when most of the *Calanthes* are over, it is the more useful. Those who possess a plant of *Phaius grandiflora* should shake it out and pot singly in 32's; employ good loam, charcoal, brick rubbish, and sand; grow it in the stove along with the ordinary collection of stove plants. It likes the treatment good gardeners give their stove plants. When fresh potted it should be shaded from bright sun till well established, when it will need more light to consolidate the growths. It must be placed in a greenhouse temperature for a few weeks in the autumn and kept a little on the dry side. After this slight rest it can be brought on in heat to follow the *Calanthes*. I treated an old plant in the way described last year and made a dozen plants of it, nine of which at the present moment are carrying over 250 blooms and buds. One was given to a lady which carried away with it three good flower spikes, and two have not flowered at all.—G. MERRITT.

THE YOUNG GARDENER QUESTION.

Now that the fire of criticism on the advice to young gardeners by "A Working Gardener," and on the allusion made respecting them by me in my communication in our Journal of December 26th, 1883, is dying out, it becomes my duty, as one who opened the subject, or at least who said a hearty yes, yes to the one who did, to give a word or two in reply. I may at the outset, perhaps, be allowed to say how surprised I have been all through the discussion of this subject to find that so few have caught the spirit of goodwill towards young gardeners that shines between every line of "A Working Gardener's" exhortation, or to recognise the good-humoured banter that I tried to put into my words. Only "Wiltshire Rector" in his annual homily in the Journal of January 3rd, 1884, seems to have a notion that all that was said by "A Working Gardener" and myself was said with an unselfish and loving desire for the best interests and truest happiness of our younger brethren. His kind and gentle allusions to our writings, and his wise, sympathetic, and encouraging words of advice to young gardeners, are such as well becometh the Christian priest, and worthily and fitly commence our volume for 1884. I say here also a hearty amen to the Editor's charitable and hopeful words touching the young gardeners that appear in his greeting "To our Readers." It does one good to hear that he can, from his wider outlook over the gardening world, testify that his experience of young gardeners is of the brightest.

Taking the letters of criticism in the order in which they have appeared I may say that "A Philistine" (January 3rd) has utterly misapprehended the spirit of my words. I must tell him, and others also who have made the same mistake, that I am as far from being hypochondriacal as light is from darkness; that I am ever one of the cheeriest of men, a condition or state that I am more grateful to God and my parents for than for any other possession I have. Not only in "A Philistine's" letter, but also in one or two others, I have noticed the flavour of a sneer running through them. This is a failing which every public writer should guard against more than almost any other. A sneer is a weak man's argument; and though to a young writer it may appear to add an element of smartness to his composition, he may rely upon it that others will not so consider it. This is a leaf out of the book of my own experience. I am too old to be moved by it, except to regret to see an otherwise good letter spoilt by it.

In the same number of the Journal and under the same heading "A Young Gardener" has a letter which is the strongest proof (if proof were needed) of my charge as to "skimming and slighting" reading. The letter is superficial all through, though on reading between the lines one is conscious that, barring the superficiality, there is a good and worthy fellow at the back of the pen. To show the on-the-surface style of reading of your correspondent, I need

only point out that the quotation from Shakespeare which he makes is only half right. He says, "Beatrice said she could easier advise twenty than be one of the twenty to follow her own instruction." Well, Beatrice said nothing of the sort in "Much Ado about Nothing;" but Portia, in "The Merchant of Venice" (act i. sc. 2), says, amongst other good things, "I can easier teach twenty what were good to be done than be one of the twenty to follow mine own teaching." I admit that the spirit of the quotation is right, but nothing shows a sound reader so much as a perfect quotation. Go deeper, my young brother, there's a good writer in you; and whatever you do always verify your quotations. Why one of the writers on "Stored-up Sap in Vines" should go out of his way to give me a back-handed slap in the face by signing himself "Not H., Notts," I do not know, except to show that he desires to advertise himself as having no connection with me, and let us hope neither of us will be any the worse for our isolation.

In the Journal of January 10th "T. L." charges me with being prejudiced against everything and everybody of the present day, and concludes, after advising young gardeners to cultivate a taste for music, that I cannot possibly be a musician, and must be a very dismal and melancholy man. All his charges and conclusions are wrong; and with respect to not being a musician, I can only say that music is the joy of my life: that I was put up into a choir to sing as soon as I could sing, having to stand on a stool to be seen: and that I have been choir-singing ever since, up to last Sunday, when I took my place on the cantors' side as leading tenor in the surpliced choir of the church where I worship. So much for one of "T. L.'s" conclusions. "T. R. M.'s" letter answers itself. It is a contradiction; it opens with blame and closes with thanks. "Querist," in the Journal of January 17th, begins by saying that there is a striking difference between the communications of "A Working Gardener" and "H., Notts." Quite so, "Querist." No one knows that better than I do, though you discount your judgment by your after suggestion that I should have supplemented "A Working Gardener's" able communication by pointing out the best way in which knowledge of the subjects enumerated could be most advantageously acquired. That is to say, you put me down by telling me that I cannot write so excellent an article as "A Working Gardener" has done, and then you blame me for not writing a better one, and even improving on that of "A Working Gardener." Paragraph the second in "Querist's" letter admits all that "A Working Gardener" and myself charge young gardeners with almost. Read it again, "Querist." My answer to "Querist's" demands are in this wise: If you want a job done do it yourself; where there's a will there's a way; don't talk, work; go at the first thing and do it well, the next will show itself when you're ready for it; look up, go forward, and keep doing; no man ever rose to greatness that talked about greatness; genius is a great capacity for taking trouble. "Every man has two educations—that which is given to him and the other that he gives himself. Of the two kinds the latter is far the most valuable; indeed, all that is most worthy in a man he must work out and conquer for himself. It is this that constitutes our real and best nourishment. What we are really taught seldom nourishes the mind like that which we teach ourselves."

Finally, be assured all ye young gardeners, we who are older and who point out your failings and weaknesses are not your worst friends. You will find as you go on in life that he is our worst friend who is always telling us what fine fellows we are and how clever we are. Personally I, with three young people belonging to me, aged respectively twenty-one, nineteen, seventeen, am only giving in public the same advice I give in private, and though they are not gardeners, I am thankful to say not being drawn to my profession, and I considering that it is very much overstocked, yet counsels of industry, thrift, economy of time as well as money, and warnings against present day allurements, are applicable to all young folks in whatever state of life they may be. I say again, as I never lose an opportunity of saying, that it is largely due to the excellent advice of the old writers in the *Cottage Gardener* and *Journal of Horticulture* that I owe my present satisfactory position. I repeat, my satisfactory gardening position. I do not say high position. Once I was as ambitious as any other young man, but the faithful teachings I received in these pages, and my own observations, soon taught me that it is not the highest positions in the gardening world that are the most satisfactory, or where a man may be most useful and comfortable in life. Wherever I was I always strove to do the best I could, and if everyone will do that honestly, his position in life that he is best fitted for will surely come to him sooner or later; and the best he can do is to go on doing the duty that lies nearest to him, and he will find that the next duty will reveal itself. If it should be that there are two ways lying before him, both of which look like duty, let him choose the roughest. The Editor is now looking for the signature. Here it is again.—H., Notts.

[On page 65 we intimated that two letters then in hand on this

subject would be published, but for others we feared space would not be available. Notwithstanding that intimation still more communications have reached us, and we have deferred the publication of the reply of "H., Notts," in the hope of finding room for them. We have failed in doing so; and as many articles await insertion, and as the two letters promised appeared on pages 84 and 85, we can no longer delay the reply of our Notts correspondent. Further discussion on this subject must be necessarily postponed until the pressure on our columns is relieved. It is due to the able "Young Gardener" who made the Shakespearean slip to state that he discovered his mistake, but his correction reached us just too late for insertion.]



KITCHEN GARDEN.

Tomatoes.—These are gaining favour annually, and many who knew little of them a few years ago are now anxious to grow them well and extensively. Ripe fruits may be had under glass from Easter until Christmas, and in the open air from July until November. The best way to grow them under glass in early spring and late autumn is to treat them like Cucumbers; but they may be grown under glass throughout the summer without any artificial heat. Seed should be sown now to produce plants for all purposes. As a yellow variety of the finest flavour Carters' Prolific is unsurpassed, Vick's Criterion is very early, Crossling's Glamorgan remarkably free, and Trentham Fillbasket and Reading Perfection are also good. As a rule the seed germinates freely, and a large quantity need not be sown to raise a few dozen plants. About two dozen seeds may be sown in a 6-inch pot, and the plants potted as required till they are ready for planting out, or many fine early Tomatoes may be gathered from plants grown in 10-inch and 12-inch pots.

Potatoes.—Seed Potatoes are now forming young growths, and where they are thickly stored in mounds those at the bottom will suffer. The best of all ways is to spread the seed tubers in a single layer in a light airy place, and let the young shoots form if they will. Apple-rooms are becoming empty, and the shelves there are capital places on which to lay out the seed Potatoes. Ours are annually subjected to this treatment, and they have always robust shoots about 1 inch long at planting time. A quantity of the earliest varieties may be planted in a south border or at the bottom of a south wall or hedge. The sets of kidneys should never be cut. Plant in rich soil and cover the sets 4 inches deep, but never plant unless the weather and soil are favourable.

Potatoes in Frames.—These are now growing rapidly. Protect them carefully from frost, and add surface soil where the young tubers are too near the light. Thin the stems where they are crowded. Two strong growths will be more valuable and productive than eight or ten that are weakly. Admit air when the sun is shining.

Radishes.—French Breakfast and Wood's Early Frame varieties should be sown on a sheltered border; a small bed will suffice. Frequent sowings in small quantities are the most satisfactory. Those coming up in frames should be thinned to 2 inches apart. Ventilate freely in all favourable weather. Winter varieties may be cleared off the ground as soon as the spring plants are ready.

Cauliflowers.—Those wintered under handlights and in frames must now be hardened-off as the weather will allow, as they should be quite hardy before being transferred to the open borders. Keep the lights off altogether on fine days, and when the nights are not very cold only put them on partially. Sow seed in gentle heat, and if the plants are grown without being checked it is astonishing how rapidly they will come on.

Kidney Beans.—Sow these in frames, pots, or boxes. Osborn's Forcing is still the favourite. Put pieces of birch to those coming into fruit to keep the plants up. Gather the pods before they become aged, so as not to check the development of the young ones. Keep plants in bloom in a dry atmosphere until the pods are formed. Encourage young plants by giving them more root room. A rich soil and a temperature of 65° or 70° advances them rapidly now.

Brussels Sprouts.—A pinch of seed may be sown in a pot or box to produce a few scores of plants for early use or exhibition. Do not force them on in any way, but merely keep them steadily growing. A frame will forward the plants some weeks before any can be raised in the open soil.

Garlic.—This may be put out now. Treat it as advised in *halls* a fortnight ago.

Carrots.—French Horn and English Horn varieties may be sown in a border. The soil must be moderately rich, open, and free from grubs. Sow in rows 1 foot apart, fill up the drills over the seed with sand, and tread or roll in. Young Carrots in frames now require more air, and many of them will be benefited by being thinned.

Stored Roots.—Carrots and Beetroot stored in sheds are now pushing growths from the crowns, and as these destroy the qualities of the roots they must be kept rubbed off before they have gained any great proportions. Turn over the roots, remove those decaying, and store afresh all that are good, as it will yet be some time before young produce can be had in quantity.

Cabbage.—A sowing of some good early Cabbage if made now will be found most useful in June and July. Make up all blanks in those which have been growing in their bearing quarters during the winter. Autumn-sown plants in seed beds, if becoming too crowded, should be thinned. If not wanted to plant elsewhere it is better to throw some of them away than have them all spoiled.

FRUIT-FORCING.

VINES.—*Early Houses.*—The first thinning of the earliest Grapes being brought to a close, and a good watering given the inside border, employing tepid liquid manure at a temperature of 80° to 85°, the berries will swell rapidly—i.e., the perfectly fertilised berries, until they reach the stoning stage; but before that is reached the bunches should be examined a second time and the heaviest shoulders tied up. It may probably be necessary to remove a few more of the berries, especially those showing evidence of weakness, as it is desirable to have the berries as near as possible of an even size. It is also necessary, when the second thinning is being attended to, to calculate the probable weight each rod will be likely to finish, and if this is considered a full one, or over-fu one, no time should be lost in removing the worst-placed and poorest bunches, so as to leave no doubt of the crop being perfect in finish. The strongest spur shoots having been tied down and stopped two or more joints beyond the bunches, the leaders and laterals should be allowed to grow until every part of the trellis is well filled with foliage, at the same time allowing sufficient room for its development and full exposure to light. Maintain a genial condition of the atmosphere by damping the floors and borders at closing time, admitting a little air at 75°, and maintaining a temperature of 80° to 85° through the day from sun heat with ventilation. Sprinkling the borders occasionally at closing time with liquid manure will be beneficial in keeping red spider in check.

Succession Houses.—The Grape-grower has plenty of work before him, as Vines when in growth must have prompt attention. Encourage succession houses by closing early with sun heat and plenty of moisture well charged with ammonia from the mulching, or if there is no mulching sprinkle the borders with liquid manure, also the paths and walls. Do not keep a close moist atmosphere, as that tends to form long-jointed wood and thin flabby foliage, but admit air freely on all favourable occasions, avoiding a high night temperature, giving a little air on warm mild evenings. Disbud as the most promising shoots advance, and do it gradually, and do not be in a hurry about stopping, allowing the shoots to get well ahead of the bunches before doing so, and then not less than two or three joints beyond the bunches. Where there is space allow the first laterals to extend according to the space at command, taking into consideration their ultimate development, it being necessary that the foliage have full exposure to light.

Late Houses.—The treatment advised for succession houses is now applicable to late kinds of Grapes intended for keeping through the coming winter. A little steady fire heat in the spring is much better than running the risk of having to ripen them in a cold sunless autumn, when hard firing becomes a necessity, and the concomitant exclusion of air to secure the needed temperature only aggravates the evil the cultivator seeks to avoid—viz., badly ripened Grapes—not coloured to the shank, and not keeping to a late period without shrivelling. It is better to start in March than have to push the Vines in autumn, when external conditions are less favourable; besides, late Grapes, as a rule, require a long period of growth, and especially for ripening, as compared with the thin-skinned varieties.

CHERRY HOUSE.—The trees started as advised in previous calendars will be flowering, or nearly so, when it is essentially necessary to utilise every favourable occasion for ventilating the house freely and for setting the fruit. If bees are near it will not be necessary to resort to artificial impregnation; but if not, it must be effected artificially, and should be done if possible when the house is freely ventilated. Begin to ventilate a little at 55°, giving air plentifully at 65°, closing for the day at 55°, maintaining a temperature by artificial means in the daytime of 50° to 55°, and dispense with it altogether at night unless the temperature is likely to fall below 40°, between which and 45° it should be maintained through the night. Although it is not advisable to syringe the trees whilst in blossom, damp the borders and paths in the morning and afternoon of fine days, modifying the moisture in accordance with external conditions. A strict look-out must be kept for aphides, and if those are present the best remedy is to fumigate with tobacco paper, being cautious in its application, as the foliage, being tender, is soon injured.

PLANT HOUSES.

Azaleas.—Plants that have been forced into bloom and are now past their best should be placed into a temperature of 50° to 55° at night, a Peach house or vinery being suitable. They should not be stood back into a cold house as is too often the case. By assisting them to make their growth at this season, forcing next autumn and winter will be easy. Before introducing these plants into heat be careful that there are no thrips upon them, or the foliage will soon be injured. These insects are easily destroyed by syringing or dipping the plants in tobacco water with which a little soft soap has been mixed. If the plants have commenced growth and their roots are active, potting, if necessary, may be done. Potting these plants should always be attended to when they require it, and not left until a good number can be done at one time. The soil around the roots should always be moist before being turned out, and small shifts are preferable to large ones. The soil should consist of good fibry peat and coarse sand, and requires to be pressed into the pots very firmly. The roots should not be disturbed more than is necessary

in the removal of the old drainage from amongst them. Give the roots every chance of recovery from injury received in potting, by withholding water as long as possible without allowing the soil to become dry. The system of applying water to settle the soil cannot be too strongly condemned. Those that do not require potting may have a sprinkling of Standen's manure on the surface. After potting has been done the plants and pots should be liberally syringed and the atmosphere kept moist.

Heaths.—The early-flowering varieties, such as *Erica hycmalis*, *E. Wilmoreana*, and others, that failed to flower last autumn and were cut back, have started freely into growth, and their roots have commenced action. In this condition, if they require it, they are ready for transferring into larger pots. If done at once the plants will have every opportunity of being established before the sun has much power. They will have a long season before them in which to make and ripen their growth, and if properly attended to will not fail to flower abundantly early next autumn. The compost should be the same as that advised for Azaleas, and the same care should be taken in the potting and watering. After potting place them in a frame close to the glass where frost can be excluded in severe weather. Keep the frame close for about a fortnight, and damp the plants lightly with the syringe on bright days, and then gradually admit air, which should afterwards be given liberally during favourable weather. A close confined atmosphere must be avoided, or the plants are soon attacked by mildew.

Epacris.—The plants that have flowered should be cut close back, and if any are bare at the base or tall they will not be injured if cut hard back into the old wood provided they are healthy and vigorous. It is surprising what strong growths healthy plants will make when subjected to hard pruning; in fact, it is the only system by which they can be furnished again from the base in a season. A vinery just starting is a good place for them if frame room is limited, but the latter is preferable if the plants can be given a temperature ranging at night from 45° to 50°, according to the weather. They should be gently syringed twice daily during bright weather, and the frame closed about 2 P.M., which will soon start them into growth.

French and Fancy Pelargoniums.—The earliest batch of these should now be established in their largest pots, and if they have been kept close to the glass the plants will be strong and sturdy. The shoots must not be stopped again, but tied out to light stakes. Place them in a night temperature of 50° close to the glass, and give air liberally when favourable; a little at night will be beneficial when mild. No attempt should be made to grow these plants in a close atmosphere, or they will soon draw up tall and weakly; on the contrary, grow them strongly and keep them dwarf. The shoots of the later batches should be pinched as they require it and potted as the plants are ready. Employ a compost of good fibry loam and a seventh of manure and sand. Pot firmly, which will assist materially in obtaining a firm solid growth instead of a soft one, with a long distance between the joints. Keep these plants in a temperature of 45°, and supplying water carefully for some time yet. Fumigate at once if aphides appear on them. A batch of cuttings for late flowering will root well if inserted singly in small pots and placed on a shelf in any warm house.



SEASONABLE NOTES ON BEES.

THERE is a tendency among those who for the first time are possessors of bar-frame hives to miss the happy medium and to err by going to one or the other extreme. Those of the one class are too fearful, cannot screw their courage to the "sticking point," while those of the other give the rein to vaulting ambition which o'erleaps itself and falls on the other side. Perhaps those in the second category fail more often, and do much more injury to the cause of bee-keeping in general than those who are at first too timid to make rapid strides in creating a proper intimacy between themselves and their bees. Instead of "screwing their courage," &c., they are rather too fearful of the sticking points which their favourites possess, and this wholesome dread often acts as a salutary deterrent from unnecessary and injurious meddling. Where the at first timid bee-keeper gradually gets on good terms with his bees, and constantly by cool quiet approaches learns how and when to handle them, to read the lesson they teach him, and to put his ever-increasing knowledge into practice, that man will in time become a bee-master. But he who makes a toy of the new hive, never ceases to be meddling with it and its inmates, does not care for their stings in season and out of season, exposes them to chills and their combs to derangement, this man is likely soon to throw up bee-keeping in disgust and to bring ill-repute on the bar-frame hive and the modern system of management. With the skep it was not possible to interfere so much with the economy of the bee hive, and even when interfered with so little was to be seen of its internal government and arrangements that the temptation was not so great to repeat the inspection often. But since Huber spread out

its combs as the leaves of a book, until the development of the present bar-frame hives open to inspection from end to end, and at any moment the temptation to invade the privacy of the insect home has grown in the same ratio as the abilities to do so.

An expert of a County Bee-keepers' Association told us the other day that he believed the bar-frame hive in the hands of many cottagers had proved a failure, owing to the injudicious manner in which the bees and brood were so constantly exposed to the chances of a chill. He went a step further, and said he believed he had traced the spread of foul brood in his neighbourhood from hives which had been thus carelessly used. Whether chilled brood will eventually bring about the fell disease, "foul brood" depends on various circumstances; but whether or not this be the case ultimately, a whole neighbourhood is endangered by a reckless owner of hives. We would, therefore, attempt to impress on all young bee-keepers the great care they should make it incumbent on themselves to take as to the manner and time of overhauling their hives, and this advice especially applies to this season of the year. We know that there are some who advise stimulative feeding to be begun about the middle of February. Our own experience has shown that it is better to commence this artificial excitement a little too late than too early. We have in most seasons being guided by the flowers as to the time to commence feeding bees for the purpose of stimulating the queen to lay eggs and the workers to raise brood. When the Crocus flowers have been well in bloom we have considered it time to commence gentle feeding. But what an extraordinary season this is! If we had looked to the Crocuses for the word of command this year we might have commenced feeding any time between New Year's day and the present date. Crocuses, Primroses, and Violets, besides many other spring flowers, have been plentiful in all the southern counties during the whole of the winter (?) months. Then what is to guide us in such a season as this? Certainly not the flowers. We would look to the condition of our hives, see that they are not in any want of food, and then wait patiently until March begins.

We find that breeding has more or less been going on for some time in our hives, probably the greater part of the winter. Compared with other years the consumption of food has been great. Since October 9th up to date of writing our registered stock has decreased in weight by 15 lbs. This would mean the consumption of a greater weight of food than the 15 lbs., for there is a quantity of brood in the hive, and brood weighs very heavy, whereas when weighed in October there was no brood. This points to the necessity of careful observation to see that hives do not run short of food. Where it is needed of course a supply must be given, but we would give it all at once. Where combs of honey have been carefully kept during the winter they will be the best of all food, at the same time seeing that there is a good supply of water near the apiary and easily to be got at. When breeding is going on there is a heavy draw on the water supply. For this reason, when once stimulative feeding is commenced, the best food for the purpose is thin syrup. By giving the supply of water thus much labour, and consequently loss of life, is saved.

But to return to our former advice. We would avoid for the present all stimulative feeding. Breeding is already going on too rapidly for the good of the stocks; a sudden spell of very cold weather will endanger the brood if it is too rapidly spread over the hive. The bees must contract the surface now covered by them in the event of severe frost, and the cluster may not be sufficiently large to cover the brood. The result will then be chilled brood, which will not only greatly retard the building-up of the stock, but may endanger its very existence. Again, stimulative feeding, having been once commenced, must not on any account for a single day be discontinued; it is, therefore, obviously wise that it should not be commenced until such time as natural conditions will permit of its steady continuance. So to all bee-keepers we would say, Keep the bees as quiet as possible for at least another fortnight. We will then, for the benefit of those who, perhaps for the first time, use a bar-frame hive, or may be for the first time handle bees, endeavour to explain what we are doing with our own bees in order to work them up to proper strength for giving either swarms or supers in due season.—P. H. P.

TRADE CATALOGUES RECEIVED.

- J. Backhouse & Son, York.—*List of Alpine and Herbaceous Plants.*
 Jules de Cock, Faubourg St. Lievin, Ghent.—*Catalogue of Plants.*
 Biddles & Co., Loughborough.—*Illustrated Catalogue of Seeds for 1884.*
 W. A. & E. Gill, Victoria Nursery, Lynton, North Devon.—*List of Ferns and Bedding Plants.*
 W. & J. Birkenhead, Fern Nursery, Sale, Manchester.—*Catalogues of Ferns and Selaginellas.*
 William Paul & Son, Crossflat Nurseries, Paisley.—*List of Florist Flowers.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (S. B.).—It is quite impossible that any man can "acquire knowledge like 'Single-handed'" by the study of any one book, and as a rule it is better to procure a number of comparatively inexpensive works on different subjects than one very large volume that is necessarily costly. Thompson's "Gardeners' Assistant" is a comprehensive and good practical work. You will find a list of useful books in another column, recommended by a gardener who has proved their value, and who has turned their teaching to excellent account. When plants and flowers are sent in the same parcel mistakes sometimes occur, as the specimens have to be examined by different authorities. Inquiry shall be made on the subject.

Poinsettias (J. S.).—The suggested notes are sure to be of service to many readers, and we will readily publish what you may obligingly send.

Cyclamens (C. P., Bracknell).—You have an extremely good strain of Cyclamens, equal to many of the best exhibition varieties, and both foliage and flowers indicate excellent culture. The dark red variety is much like one certificated last year as Mr. H. Little.

Seedling Croton (G. R.).—The leaves are very richly coloured, and somewhat resemble Comte de Germiny and C. Williamsi, but your best course would be to exhibit a plant at one of the Royal Horticultural Society's meetings, and obtain an expression of opinion from the Floral Committee.

Dendrobium nobile (B.).—Thanks for the beautiful examples of this Orchid, which will be more fully referred to next week.

South American Plants (Eighteen-years Subscriber).—We cannot determine the true names of the plants from the titles sent, but if you send us some of the seeds we will endeavour to procure the names for you. Probably 1 is a species of Aristolochia, and 2 a Canna.

Seedling Rhododendron (C. H., Bucks).—The trusses of bloom sent resemble R. altaclerense, a hybrid obtained from crossing R. arboreum with R. catawbiense. It is one of the earliest to flower, but is often injured by frosts and keen winds in the spring.

Limes not Succeeding (C. R. R.).—Limes usually flower freely in the south of England, and it is probable that your district is too cold for them. The flowers contain all the essential organs, but rarely produce seed in this country, though it ripens readily on the continent. We cannot recommend a dealer, and the other information you require could be obtained from the advertisement columns of a trade paper.

Grasses for a Wet Cold Lawn (A Young Gardener).—The ground having been efficiently drained, it will be suitable for a greater variety of Grasses than it is now. In its present state it will only be advisable to employ Poa trivialis 12 lbs., Poa pratensis 12 lbs., and Agrostis stolonifera 4 lbs., with about 6 lbs. of Trifolium repens, along with 24 lbs. of Lolium perenne tenue. With the ground well drained, and a good dressing of lime—about six tons per acre—applied and worked in before sowing, we see no reason why you should not employ a mixture of the finest Grasses—viz., Cynosurus cristatus 8 lbs., Festuca duriuscula 6 lbs., Festuca tenuifolia 2 lbs., Poa trivialis 4 lbs., Poa pratensis 4 lbs., Poa nemoralis sempervirens 4 lbs., and Trifolium repens 8 lbs., adding Lolium perenne tenue 24 lbs., so as to bring up the mixture to 60 lbs., a proper quantity for an acre. Spare no pains in forming a good tilth, which is essential to a speedy and good germination of the seeds.

Pruning Fruit Trees (A. M. B.).—Cordon fruit trees planted in the autumn should be pruned at once by simply shortening the side or lateral growths to within half an inch of the stem from which they issue, and the leader to the extent of about two-thirds of its original length. If trees have been taken up carefully, and have abundance of roots, severe pruning is less needed; still, all trees that have been removed suffer root-mutilation more or less, and the shortening of the growths becomes necessary to effect as near as possible the desired balance of strength between root and branch. Standard trees should have any small twiggy branches removed; the others, from four to six, shortened about half their length. A stronger growth and foundation for a good head will thus be insured. Bush trees require pruning on the same principle as cordons, a selection of shoots being made and regularly disposed for forming the main branches, the side growths cut in as directed, and the extremities shortened for forming a well-shaped and symmetrical tree. The main branches of a bush fruit tree should be about a foot apart.

Water Melons (G. W. T.).—You will be able to grow Water Melons in your district in the same way as ordinary Melons, either in frames or houses. In some parts of the United States, where the summer temperature

high, they are grown out of doors like ridge Cucumbers are in England. The Water Melon is known botanically as *Cucumis citrullus*, and is a native of tropical Africa and the East Indies. It serves both for food, drink, and physic to the Egyptians. It is eaten in abundance during the season, which is from the beginning of May until the end of July. It is the only medicine the common people use in ardent fevers; when it is ripe or almost putrid, they collect the juice and mix it with rose-water and a little sugar. The fruit should be eaten cautiously by Europeans, especially when taken in the heat of the day; but it is much used within the tropics and in Italy. The seeds are employed to a considerable extent as a domestic remedy in stranguary, and they are esteemed by some as diuretic.

Camellias Unhealthy (H. S.).—The root-action of the plants is defective, as it will be, no matter what kind of soil is used, if the leaves are permitted to be scorched by the sun. Some persons assert that Camellias can be grown without shade. Healthy specimens with vigorous root-action and abundance of water can be so grown, because moisture in sufficient quantity can be supplied to the leaves to maintain their freshness, notwithstanding the evaporation from their surfaces; but such plants as yours, and unhealthy plants generally, cannot be exposed to the sun or a dry atmosphere without injury, as under such conditions the moisture is extracted from the leaves faster than it is supplied by the roots, and scorching and blotching follow. Grow your plants in a moist, moderately warm, and shaded house, syringing them frequently, and if the soil is suitable, as you appear to think it is, and sound judgment is exercised in watering, they will improve considerably if they are not too exhausted.

Various (Idem).—We are not able to state the name of the particular variety of Grape to which you allude; but bunches 6 lbs. in weight are every year produced of Black Hamburgh, Black Alicante, Gros Colman, Gros Guillaume, and Muscat of Alexandria by many cultivators. You will find notes on glazed and painted pots in another column. The name of the town in question is Weston-super-Mare. Probably the "Lily of the Valley Tree" you refer to is *Clethra arborea*, which was figured in this Journal, page 131, August 14th, 1879. The flowers are white, fragrant, and somewhat resemble Lilies of the Valley in form.

Briars as Tree Protectors (E. Mason).—The method to which you allude of securing Briars to the stems of standard fruit trees was communicated to us a few years ago by Mr. Hiam in the following words:—"During the last few years I have adopted a very simple and effective method of protecting young fruit trees standing in a field from the injury caused by cattle rubbing against them. It may not be new to some readers, but I have never seen trees similarly protected, but on the other hand I have noticed many an orchard spoiled in appearance for the want of a little attention, and it cannot be out of place to call attention to my method. The system I have adopted with considerable success is, placing a few of the most formidable Briars of one or two years' robust growth around the trees, two or three round a young tree 1 inch in diameter, and so on up to about half a dozen round trees 6 inches in diameter. Since I have adopted this plan three years ago I have not found one tree touched. If the cattle once try it they will immediately become convinced the Briars are not placed there for their accommodation. After placing the thorns round the trees they are securely bound with a couple of wires top and bottom, and will last for three years at least. A dressing composed of about equal parts of cow dung and clay mixed in a bucket, and which is diluted with water which has previously stood on gas tar, is rubbed on the tree with a whitewash brush. Perhaps a portion of quicklime would be a useful

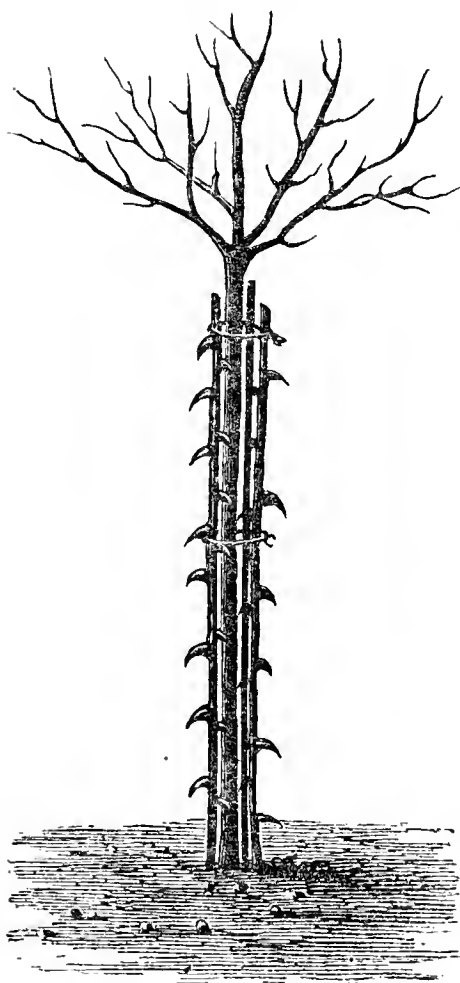


Fig. 35.

addition, but that has been omitted because it was not at hand. The odour of this composition is obnoxious to the cattle or rabbits, and is no doubt useful in destroying insects or preventing their attack."

Stephanotis (G. P., Hants).—You had better start your plant in heat without further delay if wanted in bloom by the date you mention. If you have during the past month or two kept the plant drier and cooler than an ordinary stove temperature it will soon be excited into growth if introduced into the stove. If started now an ordinary stove temperature will suffice, and it is always wise to start even a little too early than to push the plant forward in too brisk heat. Should your plant during the month of June be developing too rapidly you can easily retard it by placing it in a lower temperature; this, when time will allow, is an advantage, for the flowers will possess more substance, and be much larger and more highly scented than if forced out in sharp brisk moist heat. They will also last longer. We could give you a certain date from the records of past years for sowing the Peas you mention, but this would not be wise, for if the season proved hot and dry they might be ready too early for you, or if wet and cold they might be late. It would be advisable to make two or three small sowings during the present month instead of one large one. Those sown about the middle should be right for you if the season proves favourable.

Manure for Roses (J. B.).—You do not say one word about the condition of your Roses, whether they grow strongly or the reverse, which is a most important matter in considering your question. Some soils are so strong that Roses make slow growth, at least for a time, being long in getting established. In such a case abundance of gritty matter, such as ashes, with road sweepings, also decayed vegetable refuse and farmyard manure not too much decayed, would undoubtedly be the best material to apply, and no artificial manure, however good it might be, could give equally good results. Again, no artificial manure has the same effect on different soils, because of the differing constituents of the soils, and by no other means can a person ascertain the best manure for his own case so well as by trying the effects of a few that can be conveniently obtained. The fertiliser you name we have seen answer admirably for Roses and other outdoor crops, but it appears that you possess evidence that it is of "little or no use." Can your friends explain to your satisfaction why a particular manure is good for vegetation under glass but of little use in the open? Guano is an excellent stimulant for Roses, and so is a mixture of superphosphate of lime and sulphate of ammonia, while in all probability a liberal dressing of soot would be of great benefit in your strong soil. A mixture of urine and soapsuds poured copiously among the roots is often highly advantageous, equalling anything else that is applied. If your Roses grow freely you may obtain fine blooms without farmyard manure, but you can scarcely expect to rely on producing them of the "highest exhibition quality." Mulching the soil either with manure, short grass, or any other material in summer, to prevent its cracking, is always beneficial. By this practice, and the aid of liquid manure judiciously applied, you ought to be able to produce very good Roses.

Neglected Azaleas (I. M.).—So far as we can understand the condition of the plants it is questionable if their lost vigour can be restored. In all probability the majority of the roots "hardened into a ball" are dead, and it is quite hopeless your attempting to wash the soil from them. Even if you could do so you would gain nothing, as you could not get fresh soil in its place. There is only one method by which such "wretched" plants can be improved, and that is what timid persons would adjudge ruthless. It is to take a sharp axe or chopper and boldly cut off an inch or so off the bottom of the hardened ball, and a similar slice from all round the sides. The dead roots would then be cut away, and the live portions, if any, be brought into immediate contact with the fresh compost, in which the root-pruned plants may be potted. Before potting, take particular care that the mass of soil and roots is moist. If dry, as it possibly is, immerse in a pail of water for several hours, then allow the superfluous moisture to drain away by a few hours' exposure to the air. The ball when potted must be decidedly moist all through, but not in a wet mortar-like state. As compost use peat mainly, with a little decayed leaf soil, about a fourth, and a liberal admixture of sand. This must be healthily moist when used, but not so wet that a drop of water can be squeezed out of it. Let the pots be cleaned and well drained, protecting the crocks with a layer of fibre, then place in a little soil and press it down very firmly—sufficient to raise the plant so that the top of the ball is brought within about an inch of the rim of the pot. Now place in more soil, a little at a time, and beat it down quite hard with a blunt stick. The compost placed in must be quite as hard as that of the original ball. Too light potting of root-bound Azaleas is a common error, and often a fatal one, as the roots in such a case never "take to" the new soil, while the water that is given never passes through the old. The result is this—the new soil is made sour by saturation, while the roots packed in the hard central mass starve by want of the water that runs from them into the lighter medium. After being potted as directed the plants should be placed in a warm and moist house. If the pots can be partially plunged in a bed of leaves all the better, as less water will be needed to keep the soil moist, for moist it must be, but not excessively wet, while the plants must be syringed frequently—twice or thrice a day in bright weather. By judicious applications of water, this being an all-important matter, Azaleas in the condition that yours appear to be—starved, stunted, and root-bound—may often be greatly improved; but whether yours are "too far gone" for restoration we are not able to say—because, first, we do not know their exact condition; and secondly, so much depends on the means at your disposal and the cultural skill you are able to command in attending to the plants. Such stubborn plants must not be cut back. Only Azaleas that are in vigorous growth can be closely cut every year, as many plants are that are grown for yielding flowers for cutting, the removal of these being as much pruning, and often more, as is good for the specimens. We trust this reply will be of use to you; if not, it may be of service to others, as there are hundreds of Azaleas in a very unsatisfactory state that might be improved by the intelligent adoption of some such method as we have suggested.

Names of Plants (J. R., Bury St. Edmunds).—The plant of which you have "tried in vain to obtain the name" is *Sparmannia africana*, which is noted in another column under the head "Useful Plants."

Hives and Quilts (H. G.).—We have never used, or known to be used, bacon boxes for hive-construction, and should be fearful that the salt would be detrimental to the welfare of the bees, especially in a damp climate, if the wood were thoroughly impregnated with it. If we employed the wood of these boxes at all, it would be only as outside walls, using inner walls of well-seasoned deal, and stuffing the space with chaff, and using separators front and back between the combs and the front and back walls of the hive. Salt in itself would not hurt the bees, but the dampness caused by it would be bad in winter. Racks of sections can be worked with profit and facility on the round-topped cheese boxes. Take care to wrap them up warm, and give a quarter-inch space under the sections between them and the top of the cheese box. Having such a small entrance to them as the feed-hole, we should not employ excluder zinc. The quilts on bar-frame hive should be removed when the section rack is put on, placing it directly on the top bars, and taking great care to wrap up warmly over and around it, so as to prevent all draught and escape of heat from the body of the hive.

COVENT GARDEN MARKET.—FEBRUARY 27TH.

THE better trade has been well maintained, Grapes more particularly realising higher prices. Strawberries lower, in little demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	5 0	Nectarines dozen	0 0	to 0 0
" per barrel	0 0	0 0	Oranges 100	6 0	10 0
Apricots box	0 0	0 0	Peaches dozen	0 0	0 0
Chestnuts bushel	10 0	0 0	Pears, kitchen .. dozen	1 0	1 6
Figs dozen	0 0	0 0	" dessert .. dozen	1 0	5 0
Filberts lb.	0 0	0 0	Pine Apples English .. lb.	2 0	3 0
Cobs per lb.	1 3	1 4	Plums and Damsons ..	0 0	0 0
Grapes lb.	3 0	8 0	Strawberries oz.	0 0	1 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	4 0	Mushrooms punnet	1 0	to 1 6
Beans, Kidney .. 100	2 6	0 0	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 3
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	1 6	2 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney cwt.	4 0	5 0
Carrots bunch	0 3	0 4	Rhubarb bundle	0 4	0 0
Cauliflowers dozen	2 0	3 0	Salsafy bundle	1 0	0 0
Celery bundle	1 6	2 0	Scorzonera bundle	1 6	0 0
Coleworts .. doz. bunches	2 0	4 0	Seakale basket	1 0	1 6
Cucumbers each	1 0	1 6	Shallots lb.	0 3	0 0
Endive dozen	1 0	2 0	Spinach bushel	2 6	3 6
Herbs bunch	0 2	0 0	Tomatoes lb.	2 0	2 6
Leeks bunch	0 3	0 4	Turnips bunch	0 3	0 0
Lettuce dozen	1 0	1 6			



GRASS SEEDS FOR LAYING DOWN LAND TO PERMANENT PASTURE.

(Continued from page 160.)

THE seeds for good loams possessing a fair quantity of humus or vegetable matter, and at the same time being dry and friable, must be next considered. Generally speaking, these soils will, if properly manured, be rich enough to produce abundant crops of Grass in permanent pasture. The following varieties, four of which Mr. Faunce de Laune describes as the four coarse Grasses, are valuable beyond all others for permanent pasture:—

	lbs. per acre.
Cock's-foot (<i>Dactylis glomerata</i>)	12
Timothy (<i>Phleum pratense</i>)	4
Dog's-tail (<i>Cynosurus cristatus</i>)	4
Tall Fescue (<i>Festuca elatior</i>)	4
Meadow Foxtail (<i>Alopecurus pratensis</i>)	4
Yarrow (<i>Achillea millefolium</i>)	4
White Dutch (<i>Trifolium repens perenne</i>)	4
Cow Grass (<i>Trifolium pratense perenne</i>)	4

Total quantity per acre..... 40 lbs.

Referring to the seeds here named and included for good loamy land, it must also be remembered that nothing beyond ordinary tillage will be required if the land is clean, except green crops, &c., ploughed in, because we are now alluding to soils which are naturally fertile enough to produce fair crops of Grass, especially if these are made equal to the requirements of full crops by previous manuring and cultivation; and we mean by this preparation that in case of the land for some years having been regularly manured and tilled under alternate husbandry it will require very little extra cultivation. In the event of the soil having become foul with couch a fallow will be required for the full term of a long, or winter and summer fallow, and it should be sown with Wheat in the month of October, after the application of a good dressing of yard manure. If the land is rough and cloddy so much the better, because when the seeds are sown at the end of March or first week in April the clods will then afford abundance of fine mould for burying the seeds. Where no manure is laid on, 3 or 4 cwt of bone superphosphate may be applied at seed time with the Wheat, and 2 cwt. of nitrate of soda in February or March at the time of sowing the Grass seeds.

The preparation should be as follows:—Commence working by giving several times with heavy iron lifting drags, then roll with the Cambridge iron four-horse ring roller, and then sow the heavy and light Grass seeds separately, one lengthways, the other crossways, as the grooves formed by the rings of the roller will accept the seeds, and one or two times with the chain harrow

following will effectually bury them with the fine pulverised earth obtained by the breaking down of the weather-beaten clods. In this way all these sorts of seeds which are very small will not be buried too deeply, as the grooves made by the ring roller form the best seed bed for regulating their depth.

Our reason for sowing the Grass seeds in the Wheat in preference to Lent corn is because we found that they take much better in the young Wheat than when sown in the Barley or Oats, but especially when the Wheat is sown after a crop of Potatoes, for then the weather-beaten surface affords a firm and favourable seed bed. Again, we prefer sowing Grass seeds in the young Wheat rather than upon a naked fallow, as the Wheat during its growth protects the young Grass plants until the harvest during which time they obtain a strong root-hold on the soil without being overpowered by numerous kinds of weeds as when sown on a fall w surface, in which case they would require to be mown down, weeds and all. Another point is, that after the Wheat has been harvested the young seeds, which should not be fed off by sheep under any circumstances in the autumn, will become strong and well established before the adverse weather of our winter commences. If an over-abundant growth requires it let it be fed lightly by young cattle. As soon as the Wheat is cleared off the seeds should be rolled with the heavy ring roller. This will press the land firmly round the roots of the young plants, and insure their successful root-holding before the approaching winter sets in.

The best kinds of seed to be sown upon a very different class of soils compared with those which we have just provided for—viz., light soils resting on chalk, gravel, sand, or limestone—may now be considered. Although the manuring and treatment of the land may be rather different in some instances, yet the seeds we shall name are well adapted and quite adequate to any difference of aspect or climate in the kingdom. The list we propose for sowing is as follows as to sorts and quantities:—

	lbs. per acre.
Cock's-foot (<i>Dactylis glomerata</i>)	12
Dog's-tail (<i>Cynosurus cristatus</i>)	5
Hard Fescue (<i>Festuca duriuscula</i>)	4
Sheep's Fescue (<i>Festuca ovina</i>)	4
Smooth Meadow Grass (<i>Poa pratensis</i>)	4
Yarrow (<i>Achillea millefolium</i>)	4
Suckling Clover (<i>Trifolium minus</i>)	4
White Dutch Clover (<i>Trifolium repens perenne</i>)	4

Total quantity per acre 41 lbs.

As it is well known that each of these soils above referred to suffer more or less from dry weather, there is a great reason why we should grow Grasses and Clovers of deep-rooting varieties; and those we have chosen are specially valuable, not only for maintaining a plant on the soils named, but are also very nutritious, and will the second year after the plants are established bear the sharp biting of sheep, although their incisors are very prejudicial to the future growth of some sorts of Grasses and Clovers. It is notorious that these soils all suffer from severe drought in certain seasons. It is also to be remembered that they possess little or no humus or vegetable matters, and, like the strong class of soils referred to previously, may have been robbed of what little they contained by exhausting systems of cropping. We must therefore meet this matter somewhat in the same manner, but for a rather different purpose, for in the strong soils we require a strong growth of haulmy plants where the stems are large and capable of acting in a mechanical manner by opening and loosening the soil, where this is just the reverse on light soils. We should, therefore, grow green forage plants for ploughing-in on the fallows, a succession of succulent plants for the purpose of affording in their decay a large amount of vegetable matters without much woody fibre.

It will be noticed that we have purposely omitted Fiorin (*Agrostis stolonifera*) from our list of seeds upon the soils named, for the reason that, although it is perhaps the best known of all Grasses, it resembles Water Grass or Twitch of some strong soils, especially London clays; and when it is made into hay, which after being given to sheep upon arable land, its waste is sure to leave its seeds and foul the land, and in the same way when the hay wasted by cattle in the yards or boxes, it is sure to find its way into the arable land when the manure is laid out. Although it affords an early and late bite when other Grasses are scarce, and is therefore one of the valuable constituents of pastures, still it is only in those cases where the pastures, as in some of the midland and western districts of the kingdom, which are held and occupied separately and apart from tillage lands; therefore instead of the Fiorin we have introduced the Yarrow (*Achillea*) which is an herb rather than a Grass, but it

is especially liked by sheep as well as by cattle. On dry soils, such as those we are speaking of, it frequently forms one of the principal products for grazing, but it is rare to see it in blossom where sheep are constantly feeding. Although cattle are not so fond of it as sheep, yet before the autumn begins it will be found to be closely eaten and no seed heads remaining. There is another point in favour of this herb in pastures—it roots so deeply into the subsoil, even on the driest land, that it never flinches or seriously diminishes in production in the hottest summers; and from this cause it is found, however close it may be eaten by the sheep, to be constantly sprouting and maintaining a succession of food scarcely realised by any Grass production except Sainfoin or Lucerne. It is even better than these, because the sheep cannot eat the crowns or budding stems to their destruction like Sainfoin, for the Yarrow forms a mass of roots spreading under the surface soil, and is quite independent of any surface injury from which the Clovers, &c., suffer.

Another Grass which is named in this list is the creeping-rooted or smooth-stalked Meadow Grass (*Poa pratensis*). It is a valuable permanent Grass, for its general habit of growth, and by its standing drought well, is specially adapted for the lightest soils. Suckling Clover (*Trifolium minus*) is introduced because we have noticed how well it produces, and how permanent it is on dry chalk, gravel, and all light soils, and we think it a very desirable mixture with white Dutch Clover (*Trifolium repens*) on account of their close-growing habits affording in summer time quite a continual mass of bloom of yellow and white flowers so much relished by sheep.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—It has been a good time for rolling the young Clovers, and now the Wheat should be rolled with a heavy ring roller, both lengthways and crossways, especially upon land where the Wheat was sown after green crops ploughed in; for it will sometimes become root-fallen, as it is called, if the land is not pressed firmly. Some farmers use the Crosskill roller, but this is not so well, because it leaves the land on the surface open instead of pressing it down firm. We very seldom find lea ground Wheat—that is, when sown after Clover, requires rolling if ploughed deep enough, unless the second growth of Clover was ploughed in. We have various experiments in ploughing-in green crops this year which may interest young beginners, because it is a practice not yet so well known as it probably will be. For instance, one-half of a field was Clover lea-dunged, and Wheat sown after one ploughing, the other half of the field was a fallow for common Turnips, grown by an application of $2\frac{1}{2}$ cwt. of bone superphosphate. The Turnips proved large and well grown, and were in consequence a full crop of about 16 tons per acre when ploughed under, but would have reached 20 tons or more probably if left longer. They were, however, intended to be followed by rough chaff Essex dwarf Wheat; 12 tons or less would have been enough if they were followed by Lent corn; in fact, 8 or 9 tons when they have abundant foliage would have been enough for a crop of Oats, and 5 or 6 tons sufficient for Barley if the foliage had been gross. This land is just about being rolled with the ring roller, and will be seeded to Clover and Cock's-foot, and Timothy Grass seeds at the end of March. The next experiment is a piece of land after a crop of *Trifolium* cut for soiling cattle, and then twice ploughed, made clean, then sown with Turnips, with the same amount of manure as for the other field; but being later sown there was an abundance of foliage, but the Turnips never having been hoed were not large, but we consider them quite large enough, and they were as usual chopped with the cross-barred chopper and ploughed in, and the Wheat sown late, it being a dry, friable, and kind piece of gravelly land, but no doubt will produce a full crop of Wheat. Several other pieces or parts of fields have been done in different ways, which we intend to explain at another time.

Threshing corn ricks, both of Wheat and White Oats, has engaged the attention of men and some horses lately. The advantage of doing this work before a busier time arrives is great, for the delivery of the grain to the station or the town will engage some horses, which can be ill spared at the seed time for Lent corn, Potatoes, Mangolds, and also the preparing land for other root crops. The drilling of early Peas and Beans will now be going on. In a few days early Peas will be sown of a sort fit for market if picked and sold green; if not, they will be early to seed and harvest, in which case the land will be scarified and cleaned, and sown with Turnips or Mustard according to the day of the month, the crop in either case to be ploughed in for Wheat. Beans will be put in almost simultaneously, being drilled at about 22 inches will be easily horse-hoed and hand-hoed; and Turnips sown at the last hoeing to be ploughed in also after the Beans are harvested, which will be early, because we drill the early Mazagan variety. Sometimes we drill a portion of late Partridge Peas or Winter Vetches with the Beans. These serve to keep down the weeds and cover all the space between the rows. The chief advantage is, however, to avoid the risk of blight in the Peas by early sowing, and in the Beans when mixed with Peas or Vetches, for both never suffer from blight the same season, the Beans suffering from the black aphides and the Peas from the green aphides. The Vetches when they have blight suffer from the red rust, as it is called, but that is more seldom than other kinds of blight, and only occurs in dry hot summers.

Hand Labour.—Some men will be employed in planting Larch Firs,

for on many estates the timber has been cut, especially since the depression among the tenants upon the estates has prevailed. It will, however, answer a good purpose on various poor soils, not available either as arable or pasture, to plant this land, more particularly upon hillsides unsuited for cultivation. Other men will still be employed in cutting and converting underwood in the coppices. Others may be employed in taking off and shaping the sides of farm roads, and this labour is well spent for two reasons: because the roads will require less horse labour in carting gravel for repairs, and also because the turves of earth removed to complete the water tables or sides of the roads will be useful further on for making compost added to any spare manure for the dressing of pasture lands, and at the same time much earth may be utilised, after being mellowed in heap, for bottoming the boxes and cattle pens for the absorption of the urine, and adding greatly to the manurial resources of the farm.

Live Stock.—The lambing of the long-woolled flocks is now proceeding, and requires constant attention, especially as these ewes generally bring a large proportion of twins compared with the South-downs or Wilts and Hants downs. The weather has been, and still continues, very favourable both for the health of the ewes and the strength of the young lambs as they fall. The peculiar growth of the grass in pasture districts is an unusual feature in the present season, and has been highly favourable for all animals which exist in the open fields. The young lambs should, as soon as they will eat, have Carrots cut small, mixed with crushed Wheat or meal of Wheat; for why should the farmers after making use of their own growth of hay go to the expense of purchasing either kind of cake for lamb food or sheep either, whilst Wheat, in connection with hay chaff and cut roots, mixed with Wheat meal, is a cheap and useful substitute. We see a great and double benefit in feeding with cheap Wheat, as it tends to cheapen the selling price of cake, which the farmers do not produce, and tends to reduce the supplies and enhance the price of Wheat, which is the chief of their grain products. Cattle, especially store animals, have plenty of grass where provision of that kind is valued and reserved for them, but should retire to their yards and shelter sheds at night time, where they may receive any food calculated to maintain their health and condition, for crushed Wheat mixed with chaff would make good trough food for them, especially if some Swedish Turnips or Mangold be mixed with it.

"THE EQUIPMENT OF THE FARM."—A volume of the Farm Handbook series, bearing the above title, by William Burness, J. C. Morton, and Gilbert Murray (Bradbury, Agnew & Co., Bouverie Street), has just been issued and will form a useful addition to agricultural literature. The subject is discussed in eight chapters devoted to implements of the farm, farm equipment, farm capital, farm roads, field fences, the water supply, the farm homestead, and landlords' capital, each of which is succinctly and practically considered. In the appendix a number of useful memoranda are given, including specifications of farm buildings and a list of Land Improvement Acts.

TRADE LITERATURE.—"Farmers do not read" is an expression not by any means uncommon. But is it true? We suspect they do read, and they are abundantly supplied by the enterprise of seedsmen, who provide them with congenial literary fare. Before us are three works of interest to agriculturists. Mentioning them in the order of arrival—namely, Sutton's "Farmers' Year Book," Carter's "Farm Seeds," and Webb's catalogue of farm seeds. These are catalogues and much more. The first-named contains an elaborate illustrated article on "Some Pests of Farm Plants," with practical notes on "Cabbage as a Field Crop." The second, a concise and practical paper on "Ensilage," with "Notes on Permanent Pastures," the last-named giving prominence to the "Clover Dodder," illustrated, and the "A B C of Ensilage." All the works are profusely illustrated with the specialities of the several firms producing them.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1884.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
February.											
Sunday	17	29.971	37.8	34.9	S.E.	40.3	43.2	35.8	62.5	32.5	—
Monday	18	29.892	34.9	32.7	S.E.	39.7	42.6	32.8	71.3	28.7	0.132
Tuesday	19	29.787	40.8	40.7	S.E.	39.2	49.0	33.3	52.9	27.7	0.018
Wednesday ..	20	29.882	47.8	45.7	S.	41.0	52.4	40.0	81.7	40.0	0.120
Thursday ..	21	29.751	45.4	43.4	S.W.	42.2	51.9	43.7	78.4	41.8	0.097
Friday	22	29.675	47.8	45.5	S.	42.7	52.3	42.6	69.4	38.4	0.124
Saturday	23	29.573	43.4	41.8	S.W.	43.0	52.8	39.7	75.8	35.4	0.030
		29.787	42.6	40.7		41.2	49.2	38.3	70.3	34.9	0.521

REMARKS.

17th.—Cool, fair, with occasional sun.
 18th.—Fine and bright, but cold.
 19th.—Wet early, and foggy nearly all day, but no heavy rain after 9 A.M.
 20th.—Milder, and sunny in morning; showers in afternoon.
 21st.—Windy in early morning, with rain; fine afternoon; overcast in evening.
 22nd.—Hail and rain at 2.50 A.M.; fine morning, with solar halo; dull afternoon.
 23rd.—Showery at intervals.
 Temperature slightly lower than in the previous week, but still considerably above the average.—G. J. SYMONS.



6	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
7	F	
8	S	
9	SUN	2ND IN LENT.
10	M	
11	TU	Royal Horticultural Society, Fruit and Floral Committees at 11 A.M.
12	W	Society of Arts at 8 P.M.

ORCHIDS.

THESE continue to make a steady yet vigorous progress in public favour, and commercially they now occupy a more important position in the horticultural world than they have ever reached in previous years. Sufficient evidence of this fact is afforded by the frequency of the sales both of imported and established plants, by the number of buyers which attend these gatherings, by the good prices still obtainable for rarities and fine varieties, and, even more satisfactorily, by the increasing interest shown by amateurs and the public generally respecting these wonderful and beautiful members of the vegetable kingdom. It is true that there are disadvantages attending this advance in favour, and these have led some to designate it as "a craze" which must sooner or later die out, like the Tulipmania and similar speculative bubbles. But the evils in this case appear to be self-corrective, and will probably lead to the thorough establishment of Orchids amongst really indispensable plants. Orchid-producing regions in the Old and New Worlds are being ransacked for species of all kinds, tons upon tons are dispatched to this country, keeping the auctioneers constantly busy. If continued this must soon have an injurious effect, as the prices will decline rapidly, and growers, finding their plants steadily decreasing in value, will be prompted to dispose of them as quickly as possible. No doubt, however, the importers will soon perceive this, and discontinue, before it is too late, efforts calculated to injure their own trade.

To obtain the best evidence of the advance Orchids are making we must not go into noblemen's gardens or the leading gardening establishments, but seek in the suburbs of great cities like London, Manchester, and Birmingham, the residences of our merchant princes. In the present day these gentlemen have done much for horticulture generally, and Orchids they seem to have now taken under their especial care. The result is that scores of wonderful collections have been formed and are continually increasing. Some of the most excellent examples of cultural skill can also be seen in these establishments, for in the majority an experienced man is employed to devote his whole time and attention to the Orchid collection, and, as with all special studies, the peculiar requirements of every species are thus ascertained and provided for. As a rule, too, magnificent displays of flowers are produced at certain seasons of the year, as, with few exceptions, the most freely flowering species are grown in large numbers—*Odontoglossum Alexandræ*, for instance, often by the thousand, and other popular species of the same genus in like proportion. *Masdevallias* furnish a wealth of colour, as also do the *Dendrobes* and handsome *Cattleyas*, while the rarer but often equally beautiful species add many attractions to the displays. As proofs of the popularity of these plants with wealthy commoners the following notes on three representative gardens are submitted, but many other similar establishments are to be found within a short radius

of London, notably at Selborne, Streatham; and Downside, Leatherhead, while they also abound in the neighbourhood of provincial towns.

FERNSIDE.

At Bickley, in Kent, there are two admirable examples of suburban collections of Orchids—one at Fernside, the residence of H. M. Pollett, Esq., and the other at Oldfield, the residence of F. A. Philbrick, Esq., Q.C. Both these are model establishments as regards the number and healthy condition of the Orchids grown there, as a few descriptive notes will indicate. Mr. Pollett's houses are not large but excellently constructed, with a rather low roof and large glass, so that the plants have a free exposure to light. Ample means of ventilation is provided, of which full advantage is taken in fine weather—an important aid to the production of sturdy well-matured growth. Beneath the stages are open tanks kept filled with water, which not only affords a continual supply of moisture, but is also convenient for dipping the baskets or blocks in. The stages are covered with small pebbles that have a very clean appearance and retain a sweet moisture around the base of the pots. It is well known how important it is to protect Orchids from drip; and however well a house is glazed there is always much danger in this respect, as the condensed moisture runs from the glass to the sashbars, and thence falls on to the leaves or the flowers of the plant, doing irremediable injury. A very simple but efficient method of avoiding this is adopted at Fernside, and one which might be advantageously imitated in many other establishments. Strips of zinc about 1 inch wide have their edges turned up slightly, perhaps one-eighth of an inch, thus forming a kind of shallow trough; these are then secured to the sashbars by nails, and all the water which accumulates upon them runs down to the base of the roof and then into the tank below the stage without the slightest injury to any of the plants. It is in points such as these that so many valuable hints may be gained from specialists.

Mr. Pollett's collection of plants includes a fine stock of *Cattleyas*, among them being the now widely known, but not always appreciated, *C. Percivaliana*. There, however, it is represented by a variety with a superbly coloured lip, intensely rich crimson, and well developed. It is surprising what a number of varieties of this Orchid have already made their appearance, some being worthless, while others are exceptionally meritorious, as in the case of the variety named *citrina* recently shown at Kensington. Mr. Percival's white variety also is pretty, but it appears to be wanting in substance. A fine display of *C. Trianae* has been a feature at Fernside for some weeks past, *C. Backhousiana*, *C. speciosissima* (one variety with flowers 9 inches across), *C. Skinneri*, *C. exoniensis*, *C. Mendeli*, *C. Mossiæ*, and innumerable others, some in flower and all in most satisfactory health, with large stout leathery leaves and robust pseudo-bulbs, render this part of the collection a never-failing source of gratification to their enthusiastic possessor and his numerous visitors.

One plant just now is remarkably handsome—namely, *Zygopetalum crinitum roseum giganteum*, rather a long title, but if merit is any excuse for a long name this Orchid well deserves it, for it is one of the most distinct of the genus. It was shown at Kensington last year and honoured with a certificate, and it is again in superb condition, bearing five spikes of about two dozen large flowers. In colour this is very distinct, the lip being almost of the *Z. Mackayi* size and shape, with bright rosy purple streaks. The foliage is strong and rich green, giving the plant a most striking appearance. *Dendrobiums* are largely grown, *Cypripediums* are represented by grand specimens, *Vandas* are in moderate numbers, but amongst them a good piece of the valuable *V. Sanderiana*. Numerous spikes of the creamy white *Angræcum citratum* contribute to the beauty of the floral effect. It should be added that *Odontoglossum Phalænopsis* and *O. vexillarium* are extremely well grown in the house with the *Cattleyas*. They are in pans or shallow pots

suspended from the roof on the shady side, and when the sun is bright and the house is not shaded a piece of tiffany is hung on the sunny side of the plants, effectually protecting them when it may not be advisable to shade the whole of the house. Mr. Wilson, the gardener, who is a most careful and observant Orchid grower, considers that the chief points to insure success with *O. vexillarium* is avoiding overpotting, supplying abundance of water, and affording shade. This is his practice, and the results are stout pseudo-bulbs, strong foliage of a fine purplish hue, and abundant large flowers.

A cool house is devoted to *Odontoglossums*, *Masdevallias*, and some *Oncidiums*, and all look equally as well as the occupants of the warmer houses. The collection of *Odontoglossums* is large, including all the best species and a number of distinct varieties, particularly of *O. Alexandræ*, first favourite amongst cool Orchids. Mr. Pollett has also been very successful in obtaining several novelties, the most recent being that shown and certificated at the last meeting of the Royal Horticultural Society, South Kensington, and named in honour of its owner *O. Pollettianum*. This has well-formed flowers, broad sepals, and petals distinctly spotted with chocolate, somewhat suggestive of the beautiful *O. Pescatorei Veitchii*, but more nearly approaching *O. Alexandræ* in form. A single flower is faithfully depicted in the woodcut (fig. 36). *O. elegans* is another Fernside protégé, and very beautiful it is just now, one plant having three fine spikes. *O. Wilckeanum* with two spikes of thirteen flowers over 3 inches in diameter, and richly spotted with brown on a pale yellow ground, is charming. *O. blandum* and *O. cirrhosum* are similarly attractive, *O. constrictum* being quite a shower of blooms, one plant having nine panicles, some more than 2 feet long and gracefully arching over the plant.

OLDFIELD.

Phalænopses are admirably grown by Mr. Heims, the excellent gardener in charge of Mr. Philbrick's large collection, and a prettier house than that devoted to these plants could be seen in very few gardens at this time of year. The plants are mostly grown in baskets suspended from the roof of a small span-roofed house, the stage on each side beneath them being covered with the pretty plant *Cyrtodeira fulgida*, its neat metallic-lustrous leaves mingling with the silver-veined *Fittonia*, the variegated *Panicum*, small Ferns, and *Pilea muscosa* all growing with tropical luxuriance, trailing over the edge of the stage and down the walls at the side. The baskets are hung at different heights, and abundant graceful panicles of *P. amabilis*, *P. Stuartiana*, and *P. Schilleriana*, with *Angræcum citratum* produce an effect which for free and charming beauty we have never seen surpassed in any Orchid collection. A number of species are included, some very strong plants of *P. grandiflora* being evidently thoroughly at home, *P. violacea*, *P. rosea*, and many others imparting interest to the house. They all appear to enjoy the pure atmosphere of Bickley, and the plants flower so freely that the chief difficulty is to prevent over-exhaustion, for *Phalænopsids* when in conditions suitable to their requirements are prone to flower in excess, sometimes to the death. Many valuable plants have been lost in gardens by this means, and it needs a watchful eye and a spirit of self-sacrifice to remove flower spikes when there is the slightest danger of the plant suffering. The Oldfield collection, some readers will remember, was a few years since in a much less open situation in London, where fogs of the typical November hue and density often caused the *Phalænopsis* buds to fall by scores, leaving naked spikes as dreary mementos of the grower's disappointed hopes; yet there the plants grew as vigorously as could be wished, and there was little fear of their becoming exhausted. At Mr. Bockett's, Stamford Hill Garden, *Phalænopsids* have long been grown with similar success, and in several London nurseries the results are the same—*i.e.*, the plants retain their health so long as they periodically lose some or all their flower buds.

The ordinary stove Orchids are in strong force, a large

span-roofed house 35 feet long and 21 feet wide being devoted to some handsome specimens, *Cattleyas*, *Aerides*, *Vandas*, *Cypripediums*, all in first-rate health. A *Sobralia macrantha*, 4 feet high and as much in diameter, is a magnificent specimen, two twin plants of *Angræcum eburneum* near the entrance being notable. In an adjoining house 45 feet long and 12 feet wide *Cattleya Trianae* is flowering profusely, scores of fine blooms being open, varying greatly in colour. Several plants of the fragrant and graceful *Dendrochilum glumaceum* perfume the whole house, and suggest that this Orchid ought to be much more common than it is. What could be better for a stove? and if grown in sufficient quantity to permit the spikes being freely cut it would be invaluable. A portion of Mr. B. S. Williams' celebrated plant of *Zygopetalum Clayi*, of which a figure was given in this Journal (page 319 vol. iv.), has two good spikes, its rich purplish-blue streaked flowers being very handsome. *Eriopsis rutidobulbon* is a curiosity worth notice, because it is showing flowers, and these are rather rare. It is well known to Orchid growers by its shiny black wrinkled pseudo-bulbs which look as if they had been recently dressed with tar, Mr. Heims attributes its flowering to a long and thorough rest he has this year given it. *Lælia flava* and *L. harpophylla*, both useful garden Orchids, but especially the last-named, are grown in quantity, and they well deserve the attention they receive. *L. harpophylla* is indeed unrivalled in colour at this time of year, its neat rich orange flowers being borne most freely, and last for a considerable time. Healthy plants in 48-size pots with three dozen flowers could not be excelled for brightness and beauty by the most profusely flowered *Pelargoniums*.

The *Odontoglossum* house is a three-quarter span, 48 feet long and 12 feet wide, and well stocked with the choicer species and varieties. Prominent amongst them is the "Golden *Alexandræ*," which was certificated at the last Kensington meeting. The ground colour is a pale clear yellow with rich brown spots on the sepals. Several so-called golden varieties have been brought out at different times, but they have mostly had a common defect—namely, the gold did not keep its colour, and the flowers have relapsed into *Alexandræ*s of a very ordinary character. The Oldfield variety, however, appears to be a welcome exception to the rule, for after some time of careful proving it has been found to be true to its name, an "aureum" of the best character. *O. Rossi* is a favourite, these thriving little plants in baskets hung over the walk having from sixteen to twenty flowers each, differing much in the size and colouring, some having the petals suffused with a distinct purplish tint. *Masdevallias* and *Sophrontis* are well represented, the former especially, many species being included, besides the standard *M. Lindenii*, *M. Veitchiana*, *M. ignea*, and *M. Harryana* types, such as the delicately pretty *M. Shuttleworthii*, the small-flowered *M. triangularis*, the rare *M. psittacina* with twelve flowers, the yellow *M. Wageneri*, the *M. Chimæra* group, and several others.

It is worthy of note that the stages and shelves in the houses at Oldfield are covered with a mixture of small shells and ballast, in which are planted tufts of *Selaginella* and small Ferns, which give them a green fresh appearance, and help also to retain the moisture.

SUDBURY HOUSE.

As a third example of suburban Orchid gardens it will be appropriate to briefly refer to Mr. J. D. Peacock's wonderful collection at Hammersmith. This, without exception, is one of the most remarkable in the metropolis, for few would expect to find in that district and adjoining the high road a dozen large houses packed with the choicest Orchids purchasable in this country, and representing a money value of thousands of pounds. The unique collection of Cactaceous plants and succulents has rendered Mr. Peacock's name familiar to horticulturists, and now he has gained an equal degree of fame with his Orchids. The bulk of the collection is contained in a series of houses

arranged somewhat in the form of a quadrangle, two lean-to ranges each 158 feet long in three divisions forming the flanks, while between these are three span-roofed houses each 63 feet long, several others being also fully occupied with treasures. One feature there, is the large numbers that are grown of particular species; for instance, there are something like 8 or 9000 plants of *Odontoglossum Alexandræ* and *O. gloriosum*, which enable the gardener, Mr. Vickery, to do what can be done in few establishments—i.e., cut Orchid flowers by the bushel. Again, in how few gardens can 200 healthy plants of the lovely *Cattleya citrina* be seen! yet at Sudbury House there is quite this number, about half in pots and the others on blocks or small rafts. In regard to these it may be mentioned as a fact worthy of notice that the plants in the baskets are much the stronger, the pseudobulbs being stouter and larger, the foliage also more vigorous and healthy. Those on the rafts are, however, suspended against the back wall, which they serve to furnish in some degree, and are therefore useful. Besides, the plants are perfectly healthy and flower well, but are not quite so satisfactory as those in the baskets. *Odontoglossum Rossi* in an



Fig. 86.—*Odontoglossum Pollettianum*.

adjoining division is represented by hundreds of plants, and the same method is observed with these as with the *Cattleyas* just named. The results also are similar, the plants in the baskets being much the finer, and bearing very handsome flowers. This is a point worth attention, and were the experiment tried with many other Orchids usually grown on blocks it is highly probable that the success would be as marked.

As an example of the manner in which Orchid names are now unnecessarily multiplied, the beautiful *Odontoglossum Sanderianum*, which is now flowering abundantly at Sudbury House, is especially noteworthy. Practically, this is simply a large *O. constrictum*, the sepals and petals being exactly similar in colour and markings, the lip differing very slightly in shape, and having one central instead of two lateral spots. The most striking difference is that *O. Sanderianum* possesses a very pleasing fragrance, but this is not sufficient to give it specific value; and it is regrettable that while so many eminent botanists are endeavouring to avoid the confusion and dissatisfaction that must arise from giving specific value to varietal characters, others are going to the opposite extreme. Still *O. Sanderianum* is undoubtedly a beautiful Orchid, being easily grown, very free and graceful, amply sufficient to recommend it to growers. It would be unnecessary to describe in detail the inmates of the many other houses; suffice it that all the principal genera are largely grown, *Phalænopsis* in particular, and all alike are clean, healthy, and vigorous.

These three establishments will serve to indicate that the attention paid to Orchids in suburban gardens is very far from decreasing, and notwithstanding the dispersion of some of the leading collections of past years there is substantial evidence that the total number of Orchids in cultivation has greatly increased.—LEWIS CASTLE.

NOTES ON POTATOES.

It is a long time since Potatoes have been so plentiful and good as during this winter, and I believe I may safely say that the Potato crop of 1883 was one of the best ever lifted. For this we have principally to thank those who were the raisers or introducers of really disease-resisting varieties, such more especially as *Magnum Bonum*, *Reading Hero*, and *Scotch Champion*. Ours is by no means good land for growing Potatoes, being very heavy and cold, and is also too low-lying to suit them. In spite of these disadvantages we lifted highly satisfactory crops of the three above-mentioned sorts, all of which, owing probably to the very hot weather experienced during August, are of the best table quality.

Scotch Champion is the most certain cropper, and having been found fully satisfactory it will again be planted to the extent of about one-third of the space annually devoted to Potatoes. Ugly it undoubtedly is, the largest tubers in addition being generally hollow in the centre, but they are good from the time of lifting till the end of February. To boil them is quite a mistake; they should be steamed, and then they are floury and good. *Magnum Bonums*, however, do not steam well, and should be boiled. Several new varieties, including some of those alluded to by Mr. Fenn on page 100, and of which that veteran raiser is justly proud, proved disease-resisting and otherwise pleasing, but I shall not discard the *Champions* in favour of any of them, nor do I advise others to do so till further trials have been given them.

Magnum Bonum evidently partly originated with some American variety, both from its foliage and also from the fact of its requiring very hot weather to perfect the crop. Here, for instance, it is not invariably disease-resisting and of the best quality, and the cottagers were fast becoming disgusted with it. Last season's results will cause a reaction in its favour. *Reading Hero* forms the longest haulm of all; but it does not branch much, and is very woody. It crops well, and the tubers can be both boiled and steamed satisfactorily. Those who particularly object to the *Champions*, owing to their ugliness, should give the *Hero* a trial. All should be given plenty of room, the *Champions* growing in rows not less than 40 inches apart, the other two 3 feet apart, and the sets in each case about 1 foot apart. At these distances it is useless to attempt to crop between them.

Turning from the latest to the earliest sorts, I can speak most favourably of the true *Old Ashleaf*, which I first received from Mr. Taylor, and which he grew extensively at Longleat. It makes but little haulm, crops heavily, and is the earliest of all. The tubers are fit for use when three parts grown, but are not good if kept. To succeed these we have *Veitch's Improved Ashleaf* (which appears to me to be similar to *Mona's Pride*, *Early Bird*, and *Carter's First Crop*), and this we grow extensively under the impression that it is the most profitable early sort. It keeps good to the end of the year. *Carter's First Crop* when first grown by me cropped more heavily, but this would appear to be owing to the change of seed, as it cannot now be separated from *Veitch's*. *Myatt's* and *Rivers' Ashleafs* are both old favourites, but either from being later or other causes are more liable to disease than *Veitch's*, and are discarded, preferring rather to grow more of the latter. The best early round is *Early Border*, this making little haulm and yielding a surprisingly large number of good-sized handsome tubers. This variety, in common with the *Old* and *Veitch's Ashleafs*, are excellent for frame culture, and look well on the exhibition table.

We are now very strong in second earlies, many of the newer varieties being included in this section. *Fillbasket* forms sturdy haulm, and yields heavy crops of fairly handsome and good-cooking tubers, but the variety is not so disease-resisting as could be wished, and I give the preference to *Lady Truscott*. The latter is, in my opinion, a model variety for gardeners where double cropping has to be practised. It forms stout and not very long haulm, the leaves being very broad, and produces an exceptionally heavy crop of tubers only slightly diseased, which prove excellent in quality. *Early Regent* (Fenn's) is in every respect a good companion for the last-mentioned. *Reading Russet* is rather more vigorous with me, but yields heavily, and the rough red-skinned tubers are generally of very good shape and quality. *Triumph*, another red round, is the only American variety continuously good with me, and this short-topped heavy-cropping sort is particularly suitable for small gardens. *Beauty of Hebron*, a reddish American kidney, is much grown in

some districts, and is a very heavy cropper, but with us is much liable to disease, and is discarded. Vicar of Laleham was one of the sorts most in demand last season, and as a purple round is much liked on the exhibition table, and no doubt will again be much grown for that purpose. On heavy soil it is much liable to disease, and is besides coarse and poor in quality. Schoolmaster did not do so well as usual last season, and if we had more really good rounds for exhibition purposes would be wholly discarded. On strong land it is apt to become scarred and mis-shapen. If pains are taken not to damage the first strong sprout of the Lapstone, and also in well working the ground for it, this variety rarely fails to perfect heavy crops of handsome good-cooking tubers.

Among exhibition sorts Lapstone is still one of the best, and those who hold a good stock of it need not bother with such presumably distinct sorts as Yorkshire Hero, Devonshire Kidney, Lady Paget, Perfection Kidney, and Magnet. All these I admit will, under fairly good cultivation, yield good crops of the most handsome tubers imaginable, but in every respect bear a close resemblance to Lapstone. I ought, perhaps, to except Magnet, but this differs only in that the tubers are not so beautifully white as the Lapstone. Prizetaker and American Purple are almost certain to produce many handsome tubers, and they are of good quality, but much liable to disease. Trophy, a red kidney, is liable to be wholly destroyed by disease, and is worthless for table purposes. Snowflake (synonym, Pride of America) was always a favourite with me, but here it becomes diseased badly, and it forms a handsome dish, though poor in quality.

Adirondach, a rather coarse red round, crops heavily, and fairly handsome tubers can be selected from it; but Triumph, which it rather resembles, is superior to it. Beauty of Kent, when I first grew it, was good, now it is simply worthless. International Kidney I also find worthless in this soil. Woodstock Kidney and Sutton's Favourite are both fine for exhibition purposes, and Harlequin is a pretty neat-growing round. Ashtop Fluke is a fairly good sort. Other exhibition varieties I have grown at different times, and which are fit for that purpose only are Blanchard, Radstock Beauty, McKinlay's Pride, Manhattan, Model, Red Emperor, Porter's Excelsior, Grampian, and Garibaldi.

Potatoes being so plentiful less fresh seed most probably will be bought, but change of seed is always desirable, especially if this be effected before the first strong sprouts of the kidneys are formed. Many will perhaps be in a position to purchase some of the newer sorts for trial, and this proceeding I strongly recommend, as by so doing they may obtain something that on their particular soil may prove very profitable and good.—W. IGGULDEN.

DIGGING.

MR. INGLIS on page 162 has contributed a very useful "chapter for beginners," for it is an undoubted fact, strange as it may appear, that many young gardeners do not know how to dig. A gardener to gain the respect of the men who may be employed under him must not only be able to tell them what to do, but to show them how to do whatever work may be in hand. There are numbers of young men engaged in gardens who have no opportunity for learning how to use the spade and other implements. Their endeavour is to get into "the houses" as soon as possible, and then their desire would appear to remain there as long as they can. This is a mistake. Every person intending to be a gardener should be able to do every kind of outdoor work, and to do it as well as it can be done by anyone else—indeed better. That should be the aim of all.

There are numbers of persons hoping to be gardeners who are not only quite unable to handle the spade in a workmanlike manner, but if they were sent to turn over a piece of ground they would not know where to begin, and this your correspondent has omitted to tell them. After being dug, the surface of the ground should be level, not smooth, which is quite another matter, but devoid of mounds and hollows. These may be plentiful enough before the work is commenced, but they should never be seen afterwards.

The easiest and simplest of all methods of leaving the ground so level that, if a straight-edge were laid across it, it would rest on every clod, is to commence in the lowest place, and work from the hollows up the hills. The lower parts should always be in advance of the higher, and thus wrong will be found in a great measure to right itself. No matter where the lowest point may be, whether at a side, end, corner, or in the middle, begin there and finish at the highest point. In a piece of ground already level the digging may be straight across, as directed on the page quoted, but otherwise the configuration of the surface must be considered, and the work conducted on the principle of always keeping the lower parts well in advance, and the higher may then be left to take care of itself.—AN OLD HAND.

I should feel greatly obliged if he could suggest a cure. He at once wrote asking me to forward more branches. I did so, and in due time he wrote and told me the bushes were suffering from some kind of Phytoptus, advising me to destroy my plants. I had them at once taken up and burnt. In the autumn I obtained from a friend at Louth some fine Black Currant plants perfectly free from the pest. These did well for eight years, then the pest was so bad I destroyed them. I then planted some bushes free from pest against a north wall. I send by this post some branches. The garden adjoining the vicarage premises has an abundance of Black Currant bushes sadly diseased.—A. FITCH, *Bedale*.

[The specimens received are infested with Phytoptus Ribis, which we regret to learn is so prevalent in the north.]

THE BEST ADIANTUMS.

It is quite unnecessary to give any minute cultural details for these favourite plants, as they are by no means fastidious in their requirements. Good soil is essential, thorough drainage and plenty of moisture when growing, and when the pots are well filled with roots weak liquid manure may be given with advantage. Good yellow fibrous loam two parts, peat and leaf soil making up the other two parts, with a good addition of sharp sand, will form an excellent compost for them. Happily Adiantums are not much troubled with insects, but slugs are very fond of the young fronds, and a small glossy-shelled snail, named *Helix alliarius* on account of its smelling like Garlic, is very troublesome, and a diligent search must be made in the crown for this depredator.

STOVE ADIANTUMS.

A. amabile, Moore.—Named also by Mr. Baker A. Moorei. It is a very lovely species, with shining black stipes, and drooping ovate or deltoid fronds from 6 to 12 inches long, much divided, with the final segments roundish and entire, of a bright almost sea-green colour, with a delicate-looking texture. On account of its drooping character it is admirably adapted for basket culture, or for niches in the wall of the house, or for drooping over a ledge of the rockery; but I think as a basket Fern it has the most charming appearance, the colour and habit enable us to distinguish it at a glance. The fronds are too fragile to be of much service in a cut state, and if they were it would be a pity to cut them for such purposes when the indispensable *A. cuneatum* is grown.

A. ancitense, Carruthers.—A comparatively recent introduction from Aneiteum, whence it takes its specific designation. Introduced by Mr. William Bull. It is a noble species, producing large tri or quadri-pinnate fronds, deltoid or triangular in form, ultimately growing from 12 to 24 inches long, and nearly as much across the base, with dark brown shining stipes; the final divisions are from half an inch to 1 inch long, rhomboidal with the outer margins slightly lobed, smooth; the upper side deep green, the under surface somewhat glaucous. This is a very striking species, with its large arching fronds heavily laden with huge bold divisions, and when grown as a specimen on the stage it will form an excellent permanent feature in the fernery. It will also rank as a good exhibition plant.

A. Bausei, Hort.—This is a beautiful garden hybrid raised by Mr. Bause, and sent out by Mr. John Wills, and has become a general favourite. It produces tripinnate fronds upon nearly erect polished stipes, more or less deltoid in form, prettily drooping; the final segments, which vary greatly in outline, are also drooping, of a light green colour. On the rockery this has a charming appearance, also grown into a specimen plant in a large pot, when it may be used for exhibition purposes with telling effect. This is a very striking instance of hybridism in Ferns; it is said to be a cross between *A. trapeziforme* and *A. decorum*, and it certainly favours the assertion.

A. cardiochlena, Kunze.—Frequently met with under the name of *A. polyphyllum*. Native of Columbia and Peru, and known in some gardens for several years, but only recently very plentiful. The fronds are from 1 to 3 feet high, tripinnately divided, of a bright green colour, with a very graceful habit. It is one of the best for exhibiting, also for the decoration of the fernery. Planted out upon the rockery it presents a noble appearance, growing most luxuriantly, quickly forming a large mass of delicate greenery.

A. caudatum, Linn.—Very different from the last, producing drooping simply pinnate fronds from 6 to 15 inches long, the extremities elongated like a cord, and rooting at the extremities, and bud-bearing; and extremely pretty the plant looks when young plantlets are suspended from the fronds in a basket. The pinnae are less than an inch long, lobed, and villose, of a greyish green colour, and a soft texture. I like this as a basket Fern; no kind is more effective thus employed, especially in a humid atmosphere but of course Nature has intended it to be in such a position that the apices of the fronds may find a home for the buds which are there developed. A very pretty colouring may be had if it is planted out on the rockery. It is found in many parts of the eastern hemisphere, Ceylon, India, Cape Colony, &c. *A. ciliatum* and *A. Edgeworthii* are

THE CURRANT-BUD MITE.—I have read with much interest your article on the Black Currant pest. I think it was in 1869 I sent to the Rev. M. J. Berkeley a small branch from one of my Black Currant bushes, asking him to tell me the disease from which they were suffering, adding

synonyms of varieties at most of this plant, and may be treated similarly.

A. concinnum, H. B. K.—A very lovely species with gracefully drooping tripinnate fronds on shortish black glossy stipes, ovate-deltoid in form, the final divisions cuneate with the edges; the fronds vary in length from 9 to 24 inches, of a rich green colour when mature, delicate pink in a young state. It is one of the most elegant of all the Maidenhairs for baskets, the exquisitely drooping fronds fringing the basket, and ultimately covering it; it is also equally desirable for planting out on the rockery. There is a much-appreciated variety known under the name of *latum* which is more robust, and, as its name implies, very broad in all its parts, the fronds also being more erect—a very decorative and valuable Fern for all purposes. The normal form is a native of Tropical America, widely distributed from the Antilles to Brazil.

A. farleyense, Moore.—This magnificent variety is well known to all Fern-growers. Originally introduced from Barbadoes, and regarded as an abnormal form of *A. tenerum*, which it more closely approaches than any other species. The fronds are large and arching, growing from 1 to 3 feet long, three or four times divided, with the large final segments cuneate or semicircular, deeply lobed and fringed, of a light green colour, with a soft texture. Invaluable as it is for all decorative purposes it is especially useful for the exhibition table, always counting as a weighty plant if in good condition. It enjoys plenty of heat and moisture at the roots during the summer. I have never seen it fertile, although I have heard of its fertility, but I have on many occasions observed the margins of the segments rolled backwards, forming a kind of indusium, but such were destitute of sporangia.

A. Lathomii, Hort.—A noble Fern hybrid—well, of garden origin, said to have been selected from a batch of sporelings of *A. Ghiesbreghtii*. It produces fronds from 1 to 2½ feet long, very broad, ovate deltoid in form, with a drooping habit, tripinnately divided; the ultimate divisions sub-cuneate or half fan-shaped with evenly crenate margins, of a pleasing light green colour, and very thickly set in the pinnules. In habit and contour it resembles the last, and after all it may be but an aberrant form of *A. tenerum*, for imagine how much some Ferns vary, and this will not be difficult to appreciate. By all means grow *A. Lathomii*, whatever its parentage, and you will not fail to regard it as one of the best *Adiantums*.

L. macrophyllum, Swartz.—One of the most distinct and beautiful of the genus, with creeping rhizomes, from which stout black polished stipes are produced, carrying large fronds from 12 to 20 inches long, and from 4 to 9 inches broad, simply pinnate, with a few large pinnæ on each side of the shining rachis, which is from 3 or 4 inches long and 2 or more inches broad, with the margins lobed, of a bright velvety green colour, with a firm texture, when young of a delicate pink colour. It is admirably adapted for pot culture, forming a most effective specimen when in its grandest development, known at a glance from all the rest. Native of the West Indian Islands and Mexico, extending as far south as Ecuador.

A. peruvianum, Klotzsch.—Another handsome species, well marked, with stout, ebony-black, glossy stipes, and large arching fronds, from 1 to 3 feet long, broadly ovate in form, simply pinnate or sometimes divided at the base. The pinnæ are large, trapeziform, taper-pointed, rounded at the base, with the margins lobed or finely toothed, of a very deep shining green colour. Native of Peru. Known and named for many years, but of comparatively recent introduction, and certainly it constitutes one of the most effective stove Ferns in cultivation, and no collection should be short of it.

A. princeps, Moore.—A charming species. It produces large arching fronds, from 1½ to 3 feet long, deltoid in form, tripinnately divided, with the final divisions fan-shaped, wedge-shaped at the base, and the outer margin lobed, of a rich green colour. It is a very noble-looking species, with a great width of frond and distinct appearance, approaching *A. speciosum* and *palmatum*. A most effective plant for all, but especially for exhibition purposes.

A. Seemannii, Hook.—A native of tropical America, occurring in Brazil, Veraguas, and Guatemala. Very distinct in appearance, and comparatively rare under cultivation. It produces beautifully arching fronds from 1 to 2 feet long, and from 6 to 8 inches broad, ovate-oblong in form, simply pinnate or rarely branched below, the terminal pinna the largest. The pinnæ are 3 or 4 inches long, on slender, black, polished stalks, ovate acuminate, unequally sided, cordate on one side of the base, with the margins finely serrated, when young of a pale reddish colour, changing to deep green in a mature condition. The pinnæ are perhaps larger than those of any other species, and are very effective upon the slender petioles.

A. speciosum, Hook.—This is a very lovely Fern, although inclined to be deciduous, but if kept in heat there are generally some fronds on all the year. It produces large, arching, tripinnate, deltoid fronds from 1½ to 3 feet long, and from 9 to 15 inches across

the base, with dark polished stipes and rachises. The final segments are large, semicircular or cuneate, shortly stalked, the upper margin deeply lobed, the lobes being again cut, of a pale green colour, the upper surface covered with short pubescence. Native of tropical America, occurring in Peru, Brazil, Bolivia, &c. Of comparatively recent introduction, but it is highly esteemed.

A. tenerum, Swartz.—However much I admire *A. farleyense* and other varieties which may have emanated from this, I still regard this as one of the most graceful of all the Maidenhair Ferns, and think it should be represented in all collections of stove Ferns. It produces fronds from 1 to 4 feet long, three or four times divided; the final segments cuneate or rhomboidal in outline, the outer margin deeply lobed, on short stalks of a light green colour, with a rather thin texture. The stipes and rachises are blackish and glossy, erect, while the fronds are prettily drooping. Plants of all sizes are most suitable for all decorative work, and as a large specimen it is very effective even as an exhibition plant.—T.

(To be continued.)

FRUIT FARMING.

YOUR correspondent, "A Fruit-Grower," in his excellent article on "Fruit Farming and Jam," at page 100, is quite correct in his statement as to the vast quantity of valuable dessert and culinary Apples which are annually converted into cider in this county (Herefordshire). Many of your readers, no doubt, would scarcely credit that Ribston Pippin, Blenheim Pippin, Downton Golden Pippin, King of the Pippins, and similar choice varieties all share the same fate. Not a few persons will doubtless exclaim, "What a shame!" But your correspondent has explained why the farmers resort to this course. The excessive railway rates are the chief cause, closely followed by the exactions of dealers and middlemen. It is time something was done to relieve the farmer from these exorbitant charges. With regard to salesmen and middlemen, large growers should do as some of the Kentish fruit-growers do—viz., attend the markets themselves and sell their own productions; they will then know exactly what they realise and save the commission, and not unfrequently make a higher price than a salesman would.

Until the railway rates are considerably reduced farmers in these parts are not likely to cultivate Apples for market to any great extent, cider-making pays too well for that; and here I would draw your correspondent's attention to a slight discrepancy in his statement. He says, "It takes on an average a bushel of Apples to make a gallon of cider." He has evidently been misinformed on this point, as 200 gallons of Apples will make 100 gallons of cider of good ordinary quality. This is a fair average. Many thousands of bushels of Apples have been sold during the past autumn at 1s. per bushel of ten gallons, so that the fruit necessary to make 100 gallons of cider has cost £1; add to this the usual charge for making—viz., 5s., and then selling the cider at 6d. per gallon, it surely leaves a fair profit. One shilling per bushel may be considered very low, but the crop was so enormous last season that they paid very well even then. Many a cottager's rent is annually paid by the product of his Apple trees; and at the present time many landowners find great difficulty in letting their farms where there are no good Apple orchards upon them, but have little difficulty in doing so when they promise to plant new orchards or renovate the old ones. The farmers find it in every way better and cheaper to give their men cider in preference to beer.

I know one gentleman who plants annually 500 trees of King of the Pippins, chiefly for cider-making, and he maintains there is no variety better suited for the purpose. The great advantage in planting such sorts as King of the Pippins, Downton Golden Pippin, or Blenheim Orange in large quantities, is worthy of note, as some seasons they will pay much better to send to market than they will to make into cider, even under the present adverse circumstances; whereas if the ordinary cider sorts are planted, they must be made into cider or wasted, as but very few of them are of any value either for dessert or culinary purposes.—H. R. ILLMAN, Hereford.

PRUNING ROSES.

ON page 15 I read with a little surprise the following—"All such as are growing in sheltered positions, if pruned at once, will in all probability afford abundance of early blooms." I presume this is meant only for garden Roses, and that no one would think of treating his exhibition plants to this early pruning, as, if not absolutely destroyed by such a March as that of 1883, they are certainly damaged, and in many localities the advice, however, is given for "sheltered positions."

The next paragraph, however, is to me quite incomprehensible, and

utterly opposed to my own experience. It runs, "Maréchal Niel and the Banksians require similar treatment, both flowering at every joint throughout the strong growths formed during the previous summer." Maréchal Niel certainly does flower at every joint of these long strong growths, but most growers, I fancy, would prefer its waiting to put forth its shoots till later. It is all too prone to start, and the pruning helps this forward; but as regards the Banksians I can only ask myself, Is it possible that in different localities they should act so differently? I have never seen a Banksia Rose bloom on the joints of these long vigorous shoots; quite the reverse. It is essentially on the small growth no larger than a crow-quill that the Banksia blooms at every joint. Never have I seen a bloom on one of these 8 or 10-foot shoots of the previous year, unless it may be on small shoots of six or eight joints growing from them, and this smaller growth not of the present year. The paragraph continues, "Thin out these growths and all spray." Now, if by "spray" is meant the small shoots from 1 to 2 feet long, these are the very shoots I should preserve if I wanted my Banksia to bloom. If a Banksian, white or yellow (the latter is the stronger), be planted in good soil, say against a house, it will probably run up some 14 or 20 feet high before any flower is seen. If it be liberally treated to the knife it will be many years before a flower is seen; but if allowed to have its own way, if the "spray" be only dealt with so as to allow sufficient circulation of air, there will then be abundance of bloom, provided the tree and the knife are almost strangers. A Banksia likes to grow somewhat wildly, and where room can be spared it well repays having its own way and plenty of space.—Y. B. A. Z.

[The writer of the controverted sentence does not say gross unripened shoots of Banksians will flower, but with him all firm strong growths from 1 yard to 2 yards in length produce strong trusses at every joint. Spray will flower, but he prefers cutting this away in order to secure abundance of stronger wood, which, well ripened, enables him to cut basketfuls of better blooms.]

"I PRUNED my Roses early (March 3rd) last year, and never had better blooms in spite of the severe snowstorm and bitter weather which set in immediately after. This year, again, I have now (February 29th) finished pruning in sheltered situations, and I fully believe that our Rose trees suffer less from being pruned than they would do if allowed to weaken themselves too long by such luxuriant growth as mild seasons induce. In pruning early care must be taken not to cut back too hard. Roses in exposed places and newly planted trees are better left another two or three weeks.—A. M. B."

PROTECTING THE FLOWERS OF FRUIT TREES.

THE time being at hand for taking action in this matter, a few remarks respecting the next best material to glass for this purpose, and the manner of applying it, may be acceptable to some readers. To these I would say, Obtain No. 5 hexagon shading, which is made in widths of 54 inches and 100 inches to suit high and low walls, and which is the best and most lasting material that I am acquainted with for this purpose. Having obtained the desired number of yards for covering the respective lengths of wall, divide it by 10 feet, marking the lengths from top to bottom on the entire piece with a straight-edge and piece of charcoal as the measuring is proceeded with, commencing at $2\frac{1}{2}$ feet from the end, and over each mark thus made sew a piece of strong inch-wide tape the same length as the width of the shading. In these (commencing at the bottom and finishing at the top) with needle and thread securely fasten the necessary number of three-quarter-inch brass rings 1 foot apart, and the use of which will be explained presently. This done, stitch a ring on to each bottom end of the cloth, and another $2\frac{1}{2}$ feet along the bottom from these, after which one should be sewn on every 5 feet the entire length of the cloth, and the latter is then ready for securing to the woodwork, and with the erection of which we shall at once proceed.

The first step to be taken in this direction is to obtain the necessary number of poles from the woodman. These should be about 3 inches thick at the top and 4 or 5 inches at the bottom, and sufficiently long (measuring from the top of the cornice or projecting course of brick) to allow of 10 or 12 inches of the thick end being let into the ground 18 inches or 2 feet from the base of the wall, the first and last poles being placed in $2\frac{1}{2}$ feet from the end of the wall, and all the others at 5 feet from pole to pole, and secured at the top with screws to forked holdfasts driven into the wall three courses below the coping, and projecting therefrom 5 or 6 inches. But before putting up the poles the tops of the latter should have a piece half an inch thick and 3 inches long cut off the inner side with the saw, so that they may rest steadily against the projecting brick, and the same depth and 1 inch thick should be cut off the outer side, on which side is screwed a stout strip of iron, rounded on the outside, 12 inches long, the top $2\frac{1}{2}$ inches (above the top of the pole) being made with a shoulder, and to take a nut and washer. Between the top 3 inches of the strap (which is an inch wide and level with the top of the pole) and the latter is a space of 1 inch for the reception of strips of deal board 3 inches wide, 1 inch thick, and

from 15 to 20 feet long, and halved about 3 inches at the ends for screwing together.

These strips, to which the cloth is to be fastened with small tin-tacks, should be furnished with pulleys—first at $2\frac{1}{2}$ feet from the end, and afterwards 10 feet apart, and between them a hook should be screwed on to the board and furnished with a loop for securing the cloth when raised. When the cloth is being put up pass a piece of sash-line (in length a few feet more than twice the width of the cloth) over each pulley and through the series of rings previously mentioned, fastening it to the bottom one, thus completing the mode of raising and lowering the cloth. When the latter is down means must be provided for securing it in that position during the night. This may be done by driving a hook well into the wall at each end of the cloth, and as far down as the latter will reach, and one into each pole sufficiently low to secure the rings with which the bottom of the cloth is furnished to. The next and last step to be taken in this operation is to place wide boards, having square ends and a piece nailed across one end to overlap the joints, and in the centre of which boards and 5 feet apart holes have been previously made for the bolts attached to the top of the poles to go through, on top of the projecting course of bricks and the strips of board supporting the cloth, then apply the washer and nut, and the erection of a substantial fruit-blossom protection, which is easily put up and taken down, is completed, and which, if put away and kept dry when not in use, will do good service for fifteen or twenty years.—H. D. W.

HARDY PLANT SYNONYMS.

I THINK that "Practical" has misunderstood my motive in giving a list of synonyms. Having for some time kept a list of the different names under which common plants are received for my own especial benefit, it occurred to me that if published, and properly supplemented by those having more experience in hardy plant nomenclature, it might prove useful, and, indeed, be the dawn of a new confidence between buyer and seller, and also those wishing to exchange. I aimed at no more than running the pseudo names under one standard heading, taking the foremost establishment for my pattern. How *Achillea serrata* can be confounded with *A. Ptarmica* I will leave "Practical" to follow up, as I have tried and failed. But as regards *Campanula lamiifolia* and *C. alliariaefolia*, I fear "Practical" does not know the cultivated plants under these names. I have always followed Decandolle where it was possible, and I find that even in a wild state, and although he describes them both in his "Prodromus," he says in a footnote that they are probably the same.

Then as to the *Androsaces*, *A. coronopifolia* (Andr.) we know as the old garden name for *A. lactiflora* (Fisch), which I find to be the same as *A. septentrionalis* for all garden purposes, after cultivating the plant for some years. The extreme varieties are distinct enough, but in about a dozen plants from different localities I convinced myself of a gradual change into one another. If "Practical" explains the difference between the *Campanulas* and the *Androsaces* he will, I am sure, receive the thanks of all.—SPECIALIST.

GLAZED FLOWER POTS.

AT page 143 of the Journal, Feb. 21st, Mr. Henderson, after reading Mr. Thomson's interesting article (page 101) on glazed flower pots, suggests painting ordinary pots. About ten years ago I wanted to have the conservatory in extra good condition for a particular occasion. So, not having any of the fine glazed pots, I had them all painted with red enamel as near the shade of the pots as possible. They looked very well, and the plants grew well in them; but—and this is my reason for penning these remarks—before the season was over the paint gave way and the lime began to show through the pots, much disfiguring them, so that I was glad when the last traces of the paint were scrubbed off. I had some hundreds done, large and small, and the result was such that I did not again try to imitate the glazed pot.—G. R.

HEPATICAS.

THE various plants constituting this genus, or rather section of the genus *Anemone*, as it is now considered, are some of the brightest and best of our early spring flowers, and have many and varied claims on the interest of all lovers of hardy plants, coming into bloom as they do with the Snowdrop and the Winter Aconite, and giving bright promise of that wealth of floral beauty which the later months bring to our gardens.

This section, which is well marked, contains four so-called species, which are all now in cultivation—viz., *H. acutiloba*, *H. americana*, *H. angulosa*, and *H. triloba*; the two latter being much more generally known and cultivated than the former, *H. triloba* especially, with its numerous varieties. All of them are of easy culture and require no special position, being almost equally at home amidst the smoke and dust of a London garden or in the pure air of a country village. They thrive best, however, in a cool rich stiff loam, although not by

any means objecting to a soil containing a considerable quantity of peat, such as may be found around a *Rhododendron* bed; and, unlike many plants, will thrive under the shade of trees and amongst low-growing shrubs if not too closely planted. They should be divided carefully at the end of the flowering season—viz., about the second week in April, and replanted deeply, care being taken to put the roots well down and not cramped in a mass, as is too often the case. A slight mulching of moss around their crowns will be found very beneficial, as it checks evaporation considerably, and thereby preserves a comparatively even temperature. These plants should never be moved except when absolutely necessary, for although they will flower freely the following year, yet the difference between plants which have been allowed to remain in the same position for several years and those which have been recently disturbed is very great.

Most of the single varieties produce seed freely, which, if sown immediately it is ripe, will germinate early the following spring, and produce many shades of colour between white and deep blue or pink, the different forms shading into each other in such a manner as to set distinction at defiance. Unfortunately many of these lovely seedlings are not permanent, and gradually revert to the bright blue of the type. A short description of the various forms which have become fixed, and may be purchased at most hardy plant nurseries, will show the range of colour which may be obtained at this season (February 13th) from these plants alone.

H. acutiloba.—A stemless perennial, with numerous acutely heart-shaped leaves split into three lobes, which are very acute and not serrated. Flowers blue, solitary, on smooth stems from 4 to 6 inches in length, produced in great profusion in March. A native of the United States, usually found in copses and the less dense portions of forests. There are two varieties—viz., *alba*, distinguished only by its colour, and *fragrans*, said to be sweet-scented but in other respects identical with the type.

H. americana.—A reputed species, flowering at the same season as *H. triloba*, and so far as I have seen only an American form of that plant not sufficiently distinct for general purposes.

H. angulosa.—By far the finest plant in the section, growing to fully twice the size of *H. triloba* in all its parts, and easily distinguished from all others by its leaves being five instead of three-lobed. The leaves are produced on stems from 6 to 9 inches in length, five-lobed, the lobes being coarsely toothed. The flowers are of a bright sky blue, often as large as a half-crown, with black anthers. A native of Transylvania. This species prefers a soil containing considerably more sand than any of the others, and is decidedly the finest of all very early spring-flowering plants, flowering, as I have frequently seen it in the north of England, from the 9th to the 16th of January, and often producing a succession of flowers for two months.

H. triloba (*Anemone Hepatica*).—An old and favourite inhabitant of our gardens. Leaves cordate, three-lobed; the lobes ovate, acute, entire, but not so decidedly acute as in the first species. The flowers are blue, solitary, on hairy stems 3 to 6 inches in length, with a three-leaved involucre, very numerous, usually lasting from February to April. A native of most parts of Central Europe in the woody districts on the flanks of mountains. As far as colour is concerned this is a most variable type, in other respects very constant. This tendency would no doubt be worked upon to good effect if these plants were taken in hand by the hybridiser. Most of the varieties being named according to colour, and not needing any special culture, it will suffice to mention their names: blue, single and double (this latter at present the rarest of the varieties, and an exceedingly good plant; lilac, single; pink, single; red, double and single; major, a fine and strong-growing light blue form; Barlowi, a very good single mauve variety; splendens, the largest and brightest red of any; and last but not least the lovely *alba* and *nivea*, both single white, the former having red anthers and the latter white ones. By the way, why could not the nurserymen adopt these two last names, which are published in authoritative works, and not such titles as *Hepatica triloba alba staminibus rubra*, and ditto ditto *alba*? Such names are calculated to disturb the repose of ordinary mortals.—G. GUTHRIE.

THE BEST MEANS OF PROTECTING PYRETHRUMS FROM SLUGS.—Some time ago I had a collection of thirty varieties of those beautiful and very useful flowers. Unfortunately all our beds and borders are, with a few exceptions, edged with Box, and most people know what a refuge and safe retreat this is for slugs and other garden pests. Hardly a particle of foliage was allowed to appear, and the result was my collection dwindled, and, being unable to ripen any foliage, the roots finally died with a few exceptions. "Whatever men dare they can do," and I was determined not to be foiled, so I had two dozen more last November

of different varieties I need not now name, and have happily succeeded in completely baffling the depredators by means of sifted coal ashes. I surrounded the rising foliage with this, and gave up lime, soot, and the various other expedients I tried, and so far I am rewarded with the fullest success, which I beg to commend to any of your readers so troubled.—W. J. MURPHY, *Clonmel*.



WE are informed that in addition to the fortnightly meetings of the ROYAL HORTICULTURAL SOCIETY at South Kensington, S.W., arrangements have been made with the Council of the International Health Exhibition to hold monthly exhibitions of fruit and vegetables in the conservatory on the following dates, when prizes amounting to £1000 will be offered for competition. May 27th, June 24th, July 22nd, August 12th (Cottagers' Show), August 26th, September 23rd, and October 14th and 28th. The schedules are now being prepared, and may be had on application.

— IT has been recently stated on good authority that the average annual CONSUMPTION OF POTATOES IN GREAT BRITAIN is 4,000,000 tons, representing at 5s. per cwt. £20,000,000 sterling. Of this quantity about 200,000 tons, or a twentieth, is imported. In 1882 the British Potato crop covered about 541,000 acres of land.

— IN reference to the report of the NOTTS HORTICULTURAL AND BOTANICAL SOCIETY'S MEETING on page 167, Mr. Jenkins states that the splendid examples of *Clematis indivisa lobata* mentioned were contributed by Mr. Meadows, gardener to J. C. Cox, Esq., Basford, and not by Messrs. Barratt. Our correspondent further observes: "It is one of the most lovely winter-flowering cool greenhouse climbers in cultivation, its requirements being simple—namely, plant it out in a fairly deep and good ordinary vegetable soil, train it to the roof at first, and afterwards allow it to ramble at will."

— WE have received from Messrs. Cassell & Co. the first part of the "ENCYCLOPÆDIC DICTIONARY," which they are about to issue in monthly parts. It will embrace all the words in the English language, with a full account of their origin, meaning, pronunciation, history, and use. It will also include all Scotch words now in use, with their several significations re-investigated, re-classified, arranged afresh, and illustrated by examples. We do not know whether to admire most the marvellous labour which must be expended on the production of such a work, of which the part before us is an example, or the great accuracy, painstaking, and research which have combined to produce one of so great value. It is copiously illustrated with excellent woodcuts of technical subjects where these are required to illustrate the text. It is a great undertaking well carried out, and will be when completed a necessity in the home of all English-speaking people.

— "FIR TREE OIL: AN INSECTICIDE FOR PLANTS AND ANIMALS," by Mr. E. Griffith Hughes of Manchester, is the title of a small pamphlet before us, the object of which is to show the efficacy of the oil in question, which is, perhaps, not disputed by many persons who have used it judiciously.

— WE cite from the above pages the following time-honoured paragraph relative to WIREWORMS AND LINSEED CAKE:—"Their hardy nature renders them impervious to the action of all known insecticides, but one of the best methods of destroying them is by scattering over the ground and raking into the soil a good supply of ground linseed cake, upon which they readily feed and soon burst. The writer has found this mode of dealing with them very effectual in preventing their attacks upon annuals which were threatened by the grub." This is the first time we have had the direct evidence of a writer that he has found the above result. We have tried to destroy wireworms in the manner indicated, but always failed; and we could tell of a clergyman who mixed far more linseed cake than is usually recommended with soil, placing the mixture with a number of wireworms in a cask, keeping them there for many weeks or perhaps months. The experiment we inspected, and never saw wireworms in finer con-

dition and apparently more contented with their fare. There were hundreds of them, but so far as could be ascertained not one "burst." Perhaps they were of a hardier kind than those referred to by old authors and Mr. Hughes.

— THE LIVERPOOL HORTICULTURAL ASSOCIATION'S SPRING SHOW will be held in the St. George's Hall on Wednesday, March 19th. Prizes ranging from £3 to 5s. are offered in forty-six classes for bulbous plants, miscellaneous forced plants, Orchids, groups, and bouquets.

— MR. J. MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY, WORKSOP, FOR FEBRUARY, 1884. Total duration of sunshine for the month 58·7 hours, or 21 per cent. of possible duration. We had seven sunless days. Total rainfall, 1·29 inch. Rain fell on seventeen days. Mean temperature of month, 41·3°. Maximum on the 13th, 54·4°. Minimum on the 29th, 21·6°. Maximum in the sun on the 27th, 99·0°. Minimum on the grass on the 29th, 15·2°. Warmest day the 13th; mean temperature, 48·2°. Coldest day the 29th; mean temperature, 31·0°. Mean temperature of air at 9 A.M., 40·4°. Mean temperature of soil 1 foot deep, 41·1°. Number of nights below 32° in shade, four; on grass, thirteen. Wind mostly S.W.; average velocity, 12·8 miles per hour. The velocity exceeded 400 miles on seven days, and fell short of 100 miles on three days. The temperature was lower than in January, the rainfall less than in any February since 1878, and the sunshine less than last year, but more than in the two preceding ones. The temperature of the soil was higher than in the last two years, the vegetation being very forward.

— ON Saturday evening last a highly instructive and interesting lecture was given to the members of the LIVERPOOL HORTICULTURAL ASSOCIATION in one of the lecture rooms of the Free Library by Mr. Robert Wilson Ker, of the Aigburth Nurseries, on "New and Rare Plants." Mr. Richardson, Curator of the Botanic Gardens, presided. The lecturer gave a graphic description of his visits during the past twenty years to the principal plant-raising establishments in this country and the continent, and described, with the aid of a number of beautifully coloured drawings, most of the latest novelties introduced to the plant-admiring public. After an agreeable discussion, taken part in by Messrs. White, Ranger, and Cox, the meeting was brought to a close, a hearty vote of thanks being awarded to the lecturer, and also to Mr. Richardson for presiding. The next lecture of the session takes place on the 15th inst., when a well-known cultivator and exhibitor, Mr. Blomily of Aigburth, will give his experience on the cultivation of *Eucharis* and the *Vallota*.

— THE "Science Monthly" for March contains a portrait of Sir Richard Owen, with full account of his scientific labours. A series of papers upon "The Antiquity of the Earth" is commenced; also upon the "Recent Phenomena in the Sky." "Lessons from Common Plants" are continued, and there are contributions upon the "Extinct Volcanoes of the British Isles," and "Ferns and Lichens as Food Plants."

— WE learn that the NATIONAL CHRYSANTHEMUM SOCIETY intend issuing an official catalogue of Chrysanthemum names, and as this work is to be entrusted to a committee of experts it will undoubtedly be reliable and useful. The Honorary Secretary, Mr. W. Holmes, states that since they have adopted the title "National" they have every reason to be pleased with support they have received, which will no doubt be further extended if such useful work as that promised is continued.

— REPORTS of a SEVERE SNOWSTORM were received in London on Monday last from various parts of England and Scotland. A Dumbarton telegram stated that by far the most severe snowstorm which has visited that district for some years was raging on Monday morning. Snow began to fall about four o'clock, and it soon became from 4 to 5 inches deep. Outdoor labour was entirely suspended. In the neighbourhood of the metropolis the weather has been very cold, accompanied by continuous rain, but this will have the effect of checking the fruit blossom, which is very forward in the suburbs, Pear trees being much advanced.

— THE FOURTEENTH BRISTOL SPRING EXHIBITION is announced to take place in the Victoria Rooms, Queen's Road, Clifton, on March 19th and 20th, when liberal provision will be made for the exhibition of bulbs and miscellaneous forced plants in flower, together with flowers, bouquets, and fruits. Special prizes are offered in twenty classes, the donors being gentlemen residing in the neighbourhood and supporters

of the Society. A silver cup value four guineas is offered as the first prize in an open class for the best collection of plants arranged in a space of 12 feet by 7 feet. The Treasurer, Walter Derham, Esq., also offers three prizes of three guineas, two guineas, and one guinea respectively for collections of eighteen Hyacinths and twelve Tulips.

— "A LECTURE ON ROSES: THEIR HISTORY, CULTURE, AND EXHIBITION," by Samuel Eyre, has been sent to us, printed in the form of a small pamphlet. The lecturer is evidently an ardent lover of the Rose, and has given the outlines of its culture concisely. Cultivators are counselled to "avoid artificial manures; they are injurious and dangerous, and experienced growers never recommend them." We think his favourite author, Canon Hole, has recommended bonemeal, and we know that many Roses have been improved by its application, as they have been by other fertilisers when judiciously applied. The pamphlet is published by Mr. M. H. Miller, *Times* Office, Leek.

— THE usual fortnightly meeting of the MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY was held at the Old Town Hall last week, Mr. B. Findlay in the chair. The subject of the evening's paper was "The Life History of Flowering Plants," by Mr. G. Lunt, Superintendent of Stamford Park, Ashton-under-Lyne. Aided by a large number of specimens and diagrams the lecturer traced the whole of the processes by which the spores in some cases, and seeds in the greater number, gradually develop and progress, aided by nutriment from the soil as well as from the air, and clear light and sunshine, until leaves, buds, and flowers are formed; and then the various agencies that are then at work by which the fertilising process is carried on, so that seeds again may be perfected and the species or variety permanently established. The stems of plants and trees were treated upon and classified. The structure of leaves, the arrangements of the divisions of the flowers in many species and genera, were also described. The last meeting of the session will be held on Thursday, March 6th, when the annual report will be read.

— A CHANGE in the treatment of the ADIANTUMS AND GYMNOGRAMMAS at Kew has been recently adopted, and appears likely to lead to good results. The span-roof house there runs nearly east and west, and at the west end the sunny side has been hitherto devoted to the Gymnogrammas and the shady side to the Adiantums. Neither have made really satisfactory progress. The Adiantums have often been too weakly, and the fronds of the Gymnogrammas have displayed that unpleasant habit of shrivelling like the *Cheilanthes* and *Nothochlænas*. The fact is that Gymnogrammas, although usually described as sun-loving Ferns, require in such positions exceedingly careful and frequent attention in watering, or they speedily suffer, often to an irremediable extent. Again, as regards the Adiantums, in some market establishments the plants are grown in unshaded houses, and make sturdier and more enduring fronds under such circumstances than when in the darkened houses commonly accorded to tropical Ferns. Acting upon these facts the positions of the two genera have been reversed, the Adiantums being placed in the sunny side, and the Gymnogrammas in the shade, an improvement in their condition being discernible already. Further, the Adiantums have been placed in shallow pots or deep pans, thus avoiding the employment of so great a mass of compost for large specimens.

— THE schedule of the BASINGSTOKE HORTICULTURAL SOCIETY gives the dates of their Shows for the present year as August 19th and November 25th and 26th, the former to be held at The Goldings and the latter in the Volunteer Drill Hall. This Society appears to be flourishing, for a favourable balance of £26 is announced as a result of last season's receipts and expenses. At both Shows the classes are numerous, but the prizes are rather small.

POINSETTIA CULTURE.

I AM disposed to agree with your correspondent, Mr. C. H. Stephens, on page 60, in propagating Poinsettias in heat after potting, transferring them to a cool frame, and afterwards to an intermediate house, previous to placing them in the conservatory or stove. His method is carried out at Basing Park, which place has given me not only the finest examples of *Poinsettia pulcherrima* and *plenissima*, the bracts from 16 to 22 inches in diameter, and the plants 18 inches to 2½ feet high. In growing most softwooded stove and greenhouse plants as many as thirty two and three-light frames are used for this purpose. The result is that summer reigns in the conservatory and plant houses all the year round.

I think in the south the culture of Poinsettias might be further extended to advantage, and I feel sure many in the north would not regret trying them fairly. Nevertheless I think Mr. J. Saunderson on page 106 is correct in recommending a little more heat; but in that case a good

heated pit frame would be more useful, and is far preferable. Air and light can be more freely given.—A FOREMAN.

I BEG to offer a few remarks, as suggested by your correspondent Mr. C. H. Stephens, on our mode of cultivating this most useful and showy winter decorative plant, hoping they will be useful to some of your younger readers. When the plants have flowered, or rather after the bracts fall, they are placed in a warm house and allowed to rest until about the end of April, when they are watered, and a little extra heat employed to induce them to break. As soon as the young shoots have made three or four joints they are taken off with a heel and inserted singly in thumb pots, using a compost of equal parts of loam, leaf mould, and sand, then plunged in a propagating frame. After they are rooted we place them in an intermediate house, where they are grown during the summer along with other useful winter-flowering plants, such as Begonias, Sericographis, and Thysacanthus. The young plants are carefully attended to as regards watering and potting, 7-inch pots being the largest size we use.

After the first shift we employ a larger proportion of loam, with a little peat and old Mushroom-bed manure. The plants are kept near the glass, ventilating on all favourable occasions, lightly shading them from midday sun. When they have completed their growth and commenced to form bracts we place them in the stove, and water occasionally with soot water. As the heads become fully developed they are taken into the show house, where they give a grand display for fully three months. We have plants in bloom now that have been so since the end of November. By this method we have had heads over 20 inches in diameter. We confine our stock to young plants. It must be stated that we apply a top-dressing once or twice of Ville's Normal manure, which invigorates the plants, giving the leaves a rich green hue, and I think the bracts last considerably longer. We find it beneficial for all softwooded plants.—J. SAUNDERSON.

PEACH TREES—EXTENSION v. RESTRICTION.

I AM much interested in the extension of Peach and Nectarine trees, but I have never yet seen the system properly defined. If I am not mistaken Mr. Simpson claims credit as being the author of the extension system "pure and simple," and perhaps he can throw some light upon the subject. It appears to me that extension may be defined in much the same way as an eminent doctor defined "moderation" when speaking on the temperance cause. The doctor on asking for a definition of the term which had been advocated by a certain society, said his own was "anything between a glass and a barrel;" so with extension, it is anything between 1 yard and 20. I am perfectly aware that it is not difficult for a Peach and Nectarine tree six, seven, or eight years to have a spread of branches of 25 to 30 feet on each side of the main stem. If a tree had been allowed to extend and fill that amount of trellis in the time indicated it would be called the extension system "pure and simple." Would a tree of this description yield the same lengthened succession of fruit as two or three trees would do of different varieties if they filled the same space? Suppose a cultivator has a house 25 feet long, and a tree is planted in the centre and allowed to fill the whole house, grown on the extension system, how can the extension system be further carried out? As far as I can see extension ends, and a restrictive system must follow. Mr. Simpson, although he advocates extension, is following a system of restriction, for he says "These have had to be shortened back, and the trees root-pruned more than once to restrain over-luxuriance." What is this done for, if not to restrict the trees to a certain space, or else why not allow them to extend? If trees are root-pruned to prevent them extending, restriction commences and the extension system ends.—A WORKING GARDENER.

ELECTION OF CARNATIONS AND PICOTEEES.

THE ELECTORS' RETURNS.

[The names of the raisers of the varieties in the following lists have been given in the previous returns.]

From Mr. E. ADAMS, Swalwell, Gateshead.

CARNATIONS.

Scarlet Bizarres.

Admiral Curzon
George
Mercury
Mars
Sir J. Paxton
True Briton

Crimson Bizarres.

Black Diamond
John Harland
J. D. Hextall
John Simonite
Jenny Lind
Rifleman
Warrior

Pink and Purple Bizarres.

William Skirving
Falconbridge
James Taylor
Sarah Payne
Unexpected

Purple Flakes.

Dr. Foster
Earl of Stamford
James Douglas
Juno
Premier
Squire Meynell

Scarlet Flakes.

Annihilator
Clipper
Dan Godfrey
John Ball
Sportsman
John Bayley

Rose Flakes.

Apollo
James Merryweather
John Keet
Sybil
Flora's Garland

PICOTEEES.

Heavy Red-edged.

Brunette
Exhibition
John Smith
Mrs. Dodwell
Queen of Summer

Light Red-edged.

Elsie Grace
Mrs. Bower
Thomas William
Violet Douglas

Heavy Purple-edged.

Alliance
Fanny
Mrs. A. Chancellor
Mrs. Niven
Zerlina
Tinnie

Light Purple-edged.

Ann Lord
Clara Penson
Her Majesty
Mary
Minnie
Mrs. Harland

Heavy Scarlet or Rose-edged.

Edith Dombrain
Fanny Hellen
Lady Louisa
Miss Horner
Mrs. Payne
Royal Visit

Light Rose or Scarlet-edged.

Morning Star
Mrs. Adams
Northern Star
Mrs. Williams
Miss Wood
Mrs. Allcroft

From Mr. SAMUEL BROWN, Birmingham.

CARNATIONS.

Scarlet Bizarres.

Fred
Admiral Curzon
Alfred Hudson
Edward Adams
Philip Thomas
Robert Lord

Crimson Bizarres.

Master Fred
E. S. Dodwell
Harrison Weir
Millie
Squire Dodwell
Thomas Moore

Pink and Purple Bizarres.

Sarah Payne
Mrs. Barlow
Unexpected
Squire Llewelyn
Squire Penson
T. S. Ware

Scarlet Flakes.

Jupiter
Harry Matthews
Lady Curzon
John Ball
Clipper
Dan Godfrey

Purple Flakes.

Florence Nightingale
James Douglas
Dr. Foster
Esther
Earl of Wilton
President

Rose Flakes.

Mrs. Green
Jessica
Sybil
Miss Erskine Wemyss
John Keet
James Carter

PICOTEEES.

Heavy Red-edged.

Emmeline
Picturata
Dr. Abercrombie
John Smith
Dr. Epps
John Ball

Light Red-edged.

Thomas William
Mrs. Gorton
Elsie Grace
Mrs. Bower
Sarah Elizabeth
Arbitration
Muriel

Heavy Purple-edged.

Mrs. A. Chancellor
Indispensable
Robin Hood
Zerlina
Tinnie

Light Purple-edged.

Her Majesty
Clara Penson
Evelyn
Baroness Burdett Coutts
Mary
Minnie

Heavy Rose-edged.

Constance Heron
Mrs. Payne
Edith Dombrain
Royal Visit
Louisa
Mrs. Rudd
Miss Gorton

Light Rose-edged.

Lady Carrington
Evelyn
Mrs. Allcroft
Nellie
Daisy

BAUERA RUBIODES.

An evergreen greenhouse shrub, having somewhat slender erect branches, the young shoots having crimson bark and whitish hairs, the leaves arranged in whorls of five or six, which give to the plant a very elegant appearance. The flowers are produced from the base of the whorl of leaves in profusion, being stellate in form, about half an inch across, and of a pale rose colour. It flowers for several months in the year, generally in the late winter and early spring months, but is more or less a continuous bloomer, and being of free growth soon forms a good specimen. It does well under the treatment given to Australian plants generally, and in a compost of loam, peat, and leaf soil, with a free admixture of sand. Being of straggling habit it should be cut in after flowering, and potting deferred until it has started into free growth again. In a dry atmosphere it is subject to red spider, but that can be kept under by free syringing on fine days.—G. A.

[A figure of this plant was given in our pages, July 5th, 1883, with historical and descriptive notes.]

CACTACEOUS PLANTS.

PELECYPHORA, Ehrenberg.

(The Hatchet Cactus.)

In a botanical point of view this genus and the following one are the most interesting in the family. They are both monotypic—that is, contain one species each, and are remarkable for certain structural peculiarities that have attracted much attention from students of the order. Pelecypophora is closely related to the Mamillarias, having a short cylindrical stem, covered with mamillæ or tubercles of a flattened form, and which have

been supposed to bear some resemblance to a hatchet, as the generic name implies. At the apex, however, in the place of the spines of the Mamillarias are two rows of flat horny scales, which overlap like the tiles of a roof, and have been not inaptly compared to the scaly back of a woodlouse, to which character the specific name refers. The flowers are borne near the summit of the stem 1 to 1½ inch in diameter, consisting of several series of sepals and petals, numerous stamens and stigmas.

In culture and propagation *Pelecypora* is similar to the more delicate Mamillarias; it requires a sandy soil, good drainage, and very careful supplies of water. Offsets are seldom produced, and the readiest method of increasing it is by seeds, which germinate freely in moderate heat, and numbers of plants have been so raised in this country as well as on the continent.

PELECYPORA ASELLIFORMIS, Ehrenberg.—This, the only member of the genus, is a native of Mexico, where it was found by the brothers Tonel, associated with plants of the now discarded genus *Anhalonium*, which has

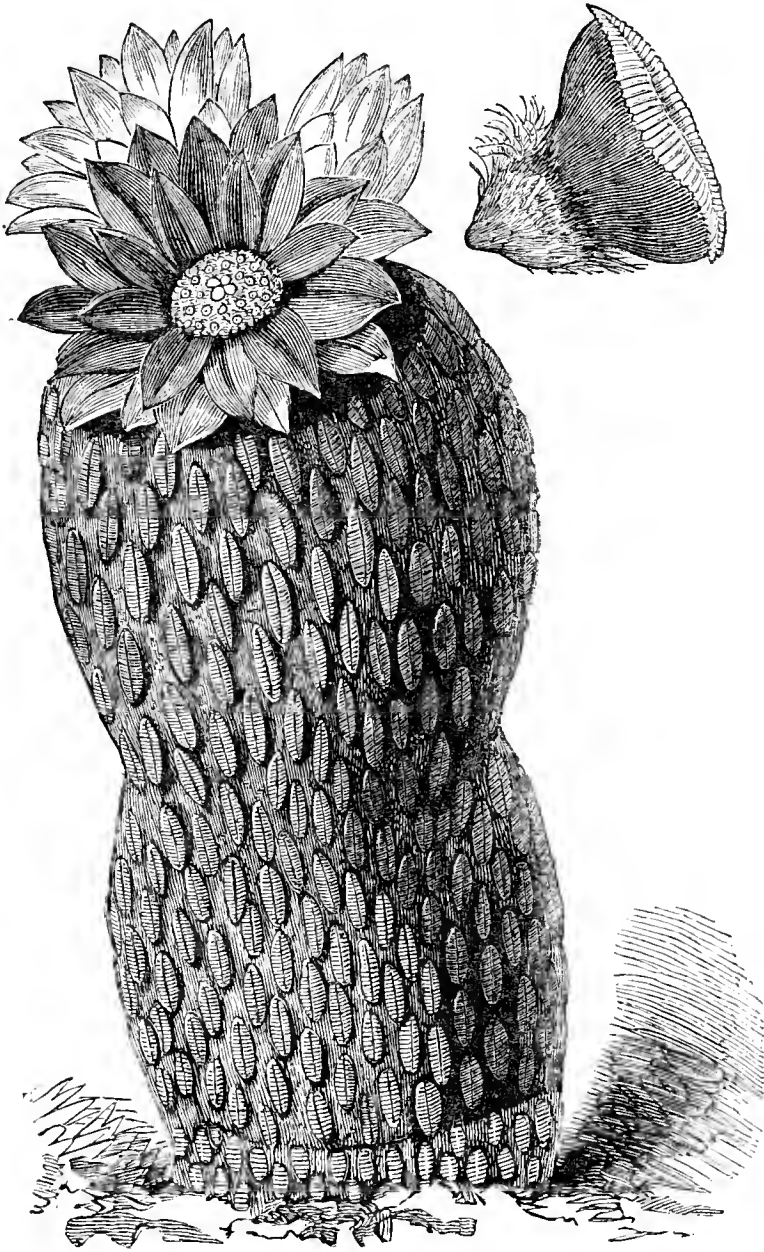


Fig. 37.—*Pelecypora aselliformis* var. *concolor*.

been already mentioned under the Mamillarias. The first plants imported to Europe were received at Berlin, but found to be dead, and Labouret relates that Ehrenberg raised the first living specimen from seeds found in dried fruits contained in the axils of the tubercles. The plants so obtained were described by the last-named author in 1843, though the flowers were then unknown. In 1858 Lemaire gave a full description and illustration of the plant in the *Illustration Horticole*, vol. vi., t. 186, which drew much attention to it, and several growers of Cacti obtained plants for their collections. Amongst English cultivators Mr. Justus Corderoy of Blewberry, Didcot, Berkshire, was especially successful in raising young plants from seed, and through him numbers were distributed throughout the country; indeed, he claims to have done what growers could never do before nor since—namely, sell plants of *Pelecypora* at 3s. each. Several of these seedlings he succeeded in flowering, and proved slightly different from Lemaire's plant in the colouring, the flowers of Mr. Corderoy's variety being uniformly rosy purple, while in Lemaire's plant they had an outer series of pale almost white petals. One of these specimens was submitted to Dr. Hooker, and figured in the "Botanical Magazine," 1873, t. 6061, under the name of *P. aselliformis* var. *concolor*. Though so interesting structurally, and pretty when in flower, this Cactus continues very scarce, and few collections now include examples of it. Fig. 37 is engraved from a photograph of one of the Blewberry plants, representing it of the natural size, a single tubercle being shown at the side.

LEUCHTENBERGIA, Hooker.

Few who were unacquainted with *Leuchtenbergia principis* would, at the first examination of a plant not in flower, think it was a member of the Cactus family; it is so entirely distinct from all the genera and species in outward appearance, and might be easily mistaken for an Aloe or some

relative of the Haworthias. A glance at the flowers would, however, be sufficient to indicate its true position in the vegetable kingdom, as the calyx is somewhat tubular with numerous lobes, the outer scale-like, the interior narrow and spreading, the petals being in two series, coloured like the petals, with indefinite stamens and numerous stigmas. The tubercles are triangular, about 3 to 4 inches long, crowned with several peculiar flattened ashy-grey spines that have a withered appearance, and vary in length from half an inch to 2 or 3 inches. These tubercles are arranged spirally round the stem, and, owing to their differing so much from the tubercles in *Pelecypora* and Mamillaria, they have been the subject of much discussion as to their true nature. The apparent difficulty of the matter has been increased by the fact that the flowers are produced near the apex of the tubercles and not from the axil, as in the Mamillarias. Respecting this point also there has been a divergence of opinion, some writers describing it as producing the flowers from the axils and others from the apex. Writing me upon this subject, Mr. R. I. Lynch, Curator of the Cambridge Botanic Garden, observes, "Lemaire in 'Les Cactées' ridicules the idea that the flowers of *Leuchtenbergia* are borne at the summit of the mammæ, but his information was untrustworthy. It does habitually flower from that position, as I have frequently seen. In some cases the flowers are produced near the apex of very little developed mammæ in the centre of the plant, and it would be easy to make a mistake as to the actual origin of the flower, as it is wedged in tightly by the other mammæ. Most flowers that I have seen were, however, borne quite clear of the centre." This is undoubtedly the fact, as I have seen flowers down in the centre as described, and, without removing them, it would be almost impossible to decide whence they sprung; while, on the other hand, Mr. Corderoy has sent me a sketch showing the flowers quite clear from the other tubercles, and close to the summit, as stated by Mr. Lynch.

These tubercles therefore appear to be of a compound nature, representing the fusion of petiole and peduncle similar to what occurs in *Helwingia* and *Erythrochiton*. Lemaire partly adopted this view regarding the mammæ of the three genera Mamillaria, *Pelecypora*, and *Leuchtenbergia* as metamorphosed leaves, the spines representing the veins of the leaves, in which opinion many careful observers agree. Le Maout and Decaisne describe them as "arrested buds," and would thus give them more the nature of branches, while others incline to the view that they are simple elevations of the substance of the stem similar to the ridges in *Echinocactus* and *Cereus*.

This is a rather difficult plant to grow satisfactorily, but it should be treated similarly to the Mamillarias as regards soil, and most carefully attended in the supply of water, as the slightest approach to excess will result in serious injury and probably the death of the plant.

LEUCHTENBERGIA PRINCIPIS, Hooker.—In 1848 an excellent figure of this plant was given in the "Botanical Magazine," accompanied by a full description by Sir W. Hooker, which is so graphic that it is here reproduced. "Our largest plant is a foot high, its main trunk erect, but crooked, as thick as a man's arm, clothed with the dense mass of persistent bases of old mamillæ, or perhaps rather of the withered mamillæ themselves, shrunk and reduced to a mass of closely pressed scales. Above they gradually become more perfect, at first short and truncated till the crown of the plant is clothed with perfectly formed mamillæ, resembling aloid leaves 4 or 5 inches long, glaucous green, succulent, triangular, truncated at the apex, and there bearing six or seven long chaffy, or almost horny linear or subulate flexuose scales, of which the centre one is about as long as the mamillæ, and the others form a whorl round the centre, are about 2 or 3 inches long, spreading, triangular. These appear to be after a time deciduous, for the lower withered mamillæ are destitute of them." In the further description of the flower the position is said to be "from the axil of a mamilla," but in the "Genera Plantarum" this has been corrected. The flowers are large, of a rich clear yellow tint, and are usually solitary, though in some cases two are borne on one plant at the same time.

The species is a native of Mexico, having been found near the Rio del Monte, and introduced to the Royal Gardens, Kew, in 1847. Like the *Pelecypora*, Mr. Corderoy has been very successful with this plant, and the engraving represents one from a photograph of eight plants, several being in flower, which he had taken some time since.—L. C.

(To be continued.)

ORIGIN OF EAST LOTHIAN STOCK.

In reference to the paragraph in your issue of the 7th ult. regarding the raiser of the East Lothian Stocks, perhaps a few words might not be inopportune about the raising and selection of these lovely plants.

About the year 1853, whilst at Traprain, I commenced a series of experiments in grafting with two varieties of Stocks, one variety known in East Lothian as Anderson's Stocks, and the other variety as Cape Stocks. After twelve years of almost incessant attention and labour upon them, I was so far successful as to select five distinct and hardy varieties of Stocks now known as East Lothian Stocks.

It may be interesting to your readers to know that during these twelve years of experimenting I raised with more or less success nearly thirty varieties, but on account of indistinct colouring, together with tender habit and inferior growth, I was compelled to discard all with the exception of the five varieties now in common cultivation.

I have often been surprised when walking through a garden to have pointed out to me what the gardener or grower called East Lothian Stocks, and to find the plants were not East Lothian Stocks at all, or, at any rate, of so inferior a quality as to be scarcely recognisable as such. The largest and finest collection of true East Lothian Stocks I have for a long time seen is in the nurseries of Messrs. Ormiston & Renwick.

My friend Mr. Thomson of Drumlanrig has all along taken a lively interest in the culture of the East Lothian Stock, and in him I have always found a warm sympathiser with my humble labours in this department of floriculture, as well as an enthusiastic admirer of this charming and valuable class of pot and bedding plants.—THOMAS CAMPBELL, *The Asylum Gardens, Melrose.*

CRINUMS.

CONTINUING my notes upon these plants from page 173, the following species are worth attention.

C. Careyanum.—Under the names *C. Moorei*, *C. Macowani*, *C. Mackenii*, *C. Makoyanum*, and *C. ornatum* what appear to be but slight varieties of one species are known in gardens. Botanically four of these should be distinct species; but so far as I have been able to ascertain the plants cultivated as such in gardens are wrongly named, being all of them forms of *C. Moorei*. The true *C. Careyanum* has a round short-necked bulb, and bears from six to ten leaves about 18 inches long, and a scape a foot high, bearing flowers about 4 inches in diameter with pale red-tinted segments. It is a native of Mauritius, and therefore requires stove treatment.

C. Moorei.—A well-known garden favourite, and is one of the finest of greenhouse bulbous plants. It is established out of doors in several gardens in this country and at Glasnevin. At Kew last year several plants growing in a sheltered border produced an abundance of flowers throughout the summer. This is the plant to which most of those under the name *Careyanum*, &c., in gardens really belong. In colour the flowers vary from almost pure white to deep rose. It is a native of Natal. By crossing this with some of the strong-growing many-flowered species some good results would most likely be obtained.

C. Commelyni.—Bulb 2 inches in diameter, short-necked, and bearing leaves 18 inches long and very narrow. The flower stalk is nearly a foot in length, and bears an umbel of four or five flowers, which are about 6 inches long, the segments being narrow and purple on the under side. A native of Para.

C. erubescens.—A common plant in tropical America, and long known in gardens here. It has an egg-shaped bulb with a short neck, and bears a large number of long narrow leaves, which terminate each in a long point. The flowers are borne in umbels of about half a dozen on stalks nearly 2 feet long, and are white or tinted with purple. There are several varieties of this species. It is a summer-flowering plant, and thrives in an ordinary greenhouse temperature.

C. giganteum.—A large-bulbed long-necked species, similar in habit to *C. amabile*. The flowers are produced on long-stalked umbels, varying in number from six to twelve in each umbel. They are pure white, and measure sometimes almost a foot in length, the segments being over an inch wide and lapping over each other similar to an *Amaryllis* flower. A delicious fragrance, good substance, and large size combine to make this *Crinum* one of the finest for large houses. It is a native of tropical Africa, and requires stove treatment and plenty of water during the greater part of the year. It flowers in summer.

C. latifolium.—A tropical, water-loving plant; and, moreover, is a somewhat variable species. The bulb is large, has no distinct neck, and bears numerous leaves, which are from 2 to 3 feet long. The flower stalk, which is produced from the side of the bulb, is about 18 inches in length, and bears about a score of white flowers, which are tinted with red. In form these flowers resemble those of the last-mentioned, but are not quite so large. A native of the warmer parts of India.

C. pedunculatum.—A large, thick-necked, and, for the size of the plant, small-bulbed *Crinum*, somewhat like *C. amabile* and several other large kinds. The flowers are pure white, and are produced in summer. At Kew it may be seen represented by several fine specimens which flower every year. A native of South Australia, and may be grown in a warm greenhouse.

C. scabrum.—A large-growing sort, with very long leaves, and flowers white striped with red, and very fragrant. One of the most beautiful species, and is a free grower and flowerer, producing about half a dozen flowers in an umbel several times during the summer months.

C. zeylanicum.—A large-bulbed species, with a short attenuated neck and leaves of a thin texture, which grow almost horizontally. The flowers are arranged in umbels of from twelve to twenty, and droop over, so that the apex of their almost tubular limb or overlapping segments looks downwards. These segments are white, with a broad band of red along each side. The flowers are very sweet-scented, and are borne during the winter.

C. Kirkii.—Similar in every point to the above. These about complete the list of garden kinds; a number of rare ones such as *C. Hildebrandtii*, *C. Balfourii*, *C. defixum*, and others grown

at Kew being as yet beyond the reach of horticulture. It will be seen from the characters of those above described that there is a wide range of variation in *Crinums*, and if the distinct and large-flowered characters of some of the unIntroduced kinds be considered, the value of the genus for garden purposes will be evident enough.

The cultivation of *Crinums* may be stated generally to consist of treatment usually adopted for bulbous plants. They all like water when growing, and those that do not lose their foliage for a portion of the year should never be dried off. The deciduous ones, of course, must be kept dry until they show signs of starting into growth again. A strong clayey loam, well drained, and mixed with wood ashes or crushed bones, is perhaps the most suitable soil for all *Crinums*. They should be potted firmly in pots of large enough dimensions to admit of their roots spreading somewhat. They require plenty of light. The most favourable time to repot them is directly after they have flowered.

For out-of-door species deep planting in a rich well-drained border, with protection from exceptionally severe weather, is all that the bulbs require. The fruits of *Crinums* resemble Oak apples in shape and size, and if placed in a warm dry atmosphere they will produce a bulb without the aid of either soil or moisture. I have had a fruit standing on a shelf near the fireplace where the atmosphere is always dry, and this produced a fine bulb in the course of about two months. The development of this bulb is very interesting and is one of those singular

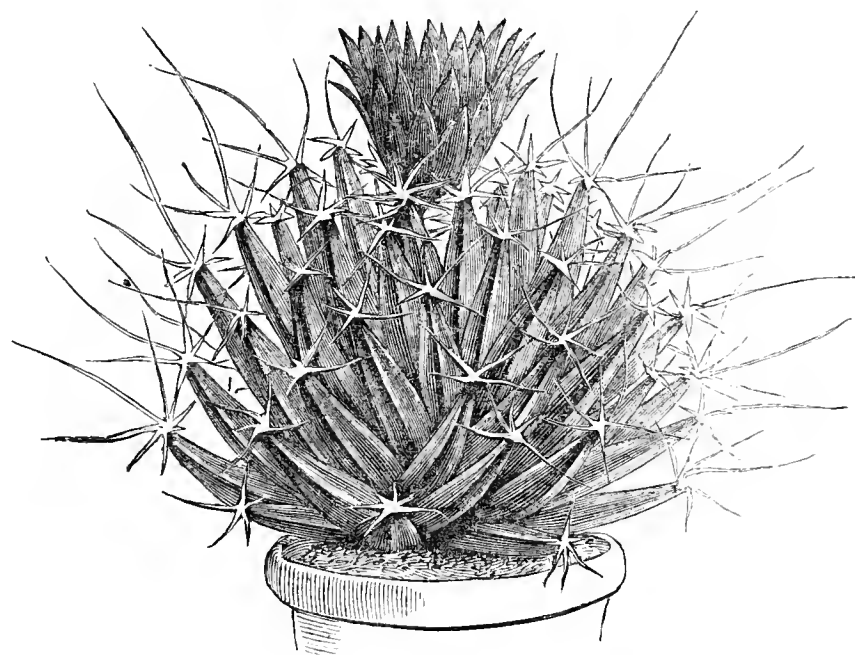


Fig. 38.—*Leuchtenbergia principis* (reduced).

instances of metamorphic vegetation which in the fruits of *Amaryllids* are of not unfrequent occurrence.—W. W.

AN EXPERIMENT WITH POTATO MANURES.

LAST year I experimented on a Potato plot with a series of manures, employed both singly as well as in combination. The experiment was undertaken to satisfy myself on some moot points raised in the *Journal* as well as in other publications, and though the extremely dry weather during six weeks of the summer rendered some of the experiments nugatory, they were on the whole extremely interesting and satisfactory. With some special manures, about twenty-four separate manures or combinations of manures were tried. Those which the drought hindered me from carrying out were a series in which potassic and phosphatic manures were applied when the crop was planted, it having been intended to add sulphate of ammonia and nitrate of soda at a certain stage of the Potato growth, and to mark the effect as compared with compounds in which the latter two agents were included and distributed when the Potatoes were planted. When rain did come growth was too far advanced to apply these nitrogenous bases.

I may explain that our soil is what is termed "light," but through long cultivation it has been brought into a good condition. Farmyard manure is freely employed, though we generally take three crops for one application of manure. I wanted to find out how far "artificial" manures benefited Potatoes on our soil; which was the best form in which to employ potash thereon; and the combination which gave the largest crop. It is not necessary to go into the whole experiments in detail, it will be of more interest to show how the largest crop was obtained,

with a note on a few of the other experiments, in order to show by results the effect of a given manure on a particular soil. I will not go so far as to say that the same results will follow under conditions which may appear similar in other gardens, but it may be expected that such would be the case; and again in recommending these manurial agents it must not be supposed that farmyard manures are thereby, or in any sense, thought less highly of than before. The simile is not quite an accurate one, but artificial manures when applied to fertile soils may be compared to the spur to a well-fed and willing horse, with this difference, that whereas the spur does not add to the staying power of the steed, artificial manures do add to the fertility of the soil.

The variety of Potato under trial was a selected form of Myatt's—perhaps the best garden Potato in cultivation when well grown. The sets were all strongly sprouted before planting. They were set out in rows 2 feet apart and 1 foot from set to set in the row. Planting was done on April 3rd with the ground in splendid condition. All the manures were strewn along the rows and mixed with the soil before the sets were planted. The ground was hoed during summer with a Dutch hoe twice, and the crop lifted in the beginning of August. The difference in the weight of crop arose from the size of the tubers in the several plots, all tubers under table size being discarded. In some cases there were never more than four table size tubers at a root, in others not fewer than ten, and these of a larger size. I give the results in tabular form, and may explain that 20 represents the smallest crop, 30 the largest, the intermediate giving the proportion of the others. The cost is given as approximating to what they would cost gardeners taking small quantities. The dressings were perhaps heavier than was quite necessary. It may also be added that although the very inexpensive combination of kainit and nitrate of soda gave very excellent returns, the next crop will most likely suffer after that manure. It is necessary to state that for Potatoes sulphate of ammonia is a much better material from which to derive ammonia than nitrate of soda, the latter passing very rapidly from the soil, while the former is slower in action and of a more lasting character.* It also seems to act better in combination with other manurial agents. Though higher in price it must be remembered that the ammonia derivable from a first-class sample of sulphate of ammonia is as 5 to 4 of nitrate of soda. The heaviest crop (30) represents about thirteen tons per acre.

Name of Manure.	Quantity per Acre	Cost per Acre in small quantity.	Comparative Crop.
None			20
Chloride of potash	2½ cwt.	25s.	20
Kainit	2½ cwt.	12s.	22
Superphosphate of lime	3½ cwt.	21s.	20
Kainit and nitrate of soda	5 cwt.	47s.	28
Superphosphate of lime	8 cwt.	85s.	25
Sulphate of potash			
Sulphate of ammonia			
Superphosphate of lime			
Chloride of potash	8 cwt.	90s.	30
Sulphate of ammonia			
Special manure	8 cwt.	160s.	30

—R. P. BROTHERSTON.

HISTORICAL JOTTINGS ON VEGETABLES.

SMALL SALADS.

CONCERNING tastes, as a familiar saying informs us, disputes are vain, and are reasonably judged to be so, for in the matter of the palate no one has any right to quarrel with his neighbour's likes or dislikes, and it would be of no use to attempt to change these by force of argument. One exception to the general rule, however, lies in the case we sometimes meet with, where an individual professes to dislike some article or compound which he has never tasted. We have reason on our side if we ask him to give it a fair trial. Much, no doubt, depends upon early training in this as in other things; and there are plenty of instances where generations have persistently eaten of a dish which later generations have as uniformly rejected, not because of its unwholesomeness or scarcity, but because its place was occupied by some new dish, which has had its turn of popularity. Were the salads of three or four centuries ago to be concocted

now we question if they would be partaken of by modern Englishmen; even supposing they were presented apart from their history, both appearance and flavour would probably tell against them. "Salad," say the dictionary makers, comes from a French word spelt almost similarly. Our forefathers, indeed, seem to have frequently written it "sallet." The origin is presumed to be the Latin *sal*, because the compound thus styled contained a predominance of salt. I cannot regard the derivation as quite satisfactory, but am unprepared with a better. Such salads until about the commencement of the Georgian era, contained none of those plants we now commonly employ, but such as could be gathered by fields or waysides, made pungent by the Onion and its allies, or perhaps in winter by the addition of spices and pepper. Being not unusually mixed in bowls of metal, there must have been at times an unwholesomeness about the salad whenever acids in any quantity formed part of the compound. The stronger acids, such as vinegar, were occasionally displaced by the leaves of one of the Sorrels, which would suffice to give a mild acid flavour. Amongst the plants that have been specified as favourites in old salads we find the Lamb's Lettuce (*Fedia olitoria*), the Burnet (*Poterium Sanguisorba*), the powerful and abundant Hedge Garlic (*Erysimum Alliaria*), that presumed strengthener of the heart the Cuckoo Flower (*Cardamine pratensis*), with others doubtless of the Cruciferous or Cress tribe allied to our garden species.

This Cress, the *Lepidium sativum* of botanists, though now so familiarly associated with the Mustard, was not eaten green with it until a comparatively recent date. The seeds of the Mustard species have a long history, but we do not know the name of the man who first ate or suggested the eating of the young plant in a green state. Lists of the street cries of old London do not tell us of any early vendors of vegetables who carried round Mustard and Cress; indeed to the present hour this small salad is not often sold by the street costermongers, though raised all the year through for the market, the demand for it varying considerably. It is likely the two became thus associated about the beginning of the reign of George III. It would appear, however, from remarks in sundry old books on gardening that for some time the young leaves of the Turnip were eaten with Cress to impart some pungency.

Concerning the general history of the cultivated species of Mustard, we may first note that some kind, hardly to be identified now with certainty, but which may have been our *Sinapis nigra*, was grown both in Europe and Asia centuries before the Christian era, and where circumstances proved favourable it attained to a size which would justify the comparison in Matt. xiii. 31. By the Greeks and Romans Mustard seems to have been valued both as a medicine and as an article of diet, and probably it was brought into Britain during the period of Roman rule. Its effect upon the eyes is supposed to have originated the Latin name from *sino* and *opsis*; others connect it with the Keltic *neup*. Mustard, the English name, comes of course from the French *moutarde*, though the old appellation for it is said to have been *senevé*. A household book containing records of the expenditure of the Duke of Northumberland in some years of the sixteenth century acquaints us with the fact that his retainers disposed of about 160 gallons of the seed per annum: it was eaten whole boiled accompanied with vinegar. The cultivation of the Black Mustard in fields is mentioned before that date; and Tusser, writing upon the "Five Hundred Points of Good Husbandry," directs that the seed be sown in February after rain.

The White Mustard (*Sinapis alba*) was introduced during the reign of Elizabeth, and Gerard informs us that he helped on its diffusion through Britain by distributing packets of seed wherever he found persons willing to grow the plant. It is a species that grows apparently wild in South Europe and Western Asia. His comments upon Mustard imply that it had begun then to be used as a condiment in the mode we place it on our tables, but the seeds were ground very coarsely. A doctor who was one of Gerard's contemporaries, recommends Mustard as a strengthener of the voice if the powdered seeds mixed with honey into a paste are taken early in the morning, which might furnish a hint to modern speakers and singers. For a good while much Mustard seed was sent to the metropolis from distant places, which were supposed to produce better crops than did the soil near London, though this was really but a fancy. Thus Coles, about the date of the Restoration, mentions Tewkesbury as a town that grew a good deal of Mustard in its vicinity, and which was sent long distances by the slow conveyances of the age. Durham, too, amongst other places became famous for its Mustard, not only for the reason above, but because the first "flour of Mustard" was manufactured there in 1720, the inventor of the process being a Mrs. Clements. George I. accepted samples of the article, the nobility and gentry patronised it, and so

* I have tried experiments with saltpetre (nitrate of potash), but the results have been rather disappointing. Its cost is high, about 50s. per cwt.

Durham Mustard obtained a name it has kept to this day. When Mustard, the white more particularly, began to be appreciated by farmers the seeds were largely sown in the fenny districts of Cambridgeshire and Lincolnshire. Essex and Kent are also counties where Mustard fields frequently greet the eye.

The Garden Cress (*Lepidium sativum*) is a native of Greece, a fact only verified at a comparatively recent date. But it was well known before then that the Greeks in early times grew the plant freely, believing it answered the double purpose of food and medicine. Xenophon is reported to have advised the Asiatics to cultivate it, because it would help them to overcome the languor caused by an eastern climate. If the name "cress" or "kers" is found, as some say, in most primitive European languages we should conclude it was grown, or at least gathered, throughout Europe many centuries ago. Pliny believed that even insanity could be cured by an abundance of Cress; and Cogan, soon after it had attained to popularity in England, advised persons to eat it who wished to have their wits sharpened! For, however common it may have been in gardens on the Continent, Gerard assures us it was hardly known here until the middle of the sixteenth century, the seed coming from France. From the copious directions contained in books of instruction in gardening compiled last century as to how best to cultivate Mustard and Cress, it is evident this small salad was much in demand and freely grown in the open air, as also in frames, to supply the market from autumn to spring.

The spring, again, has been considered to be the season when the Watercress should be eaten as a purifier of the blood, and in the olden time children were physicked with a drink made by boiling its tops with those of the Scurvy Grass (*Cochlearia officinalis*) in spring water. According to Mr. Glasspoole, it was not until 1808 that this plant (*Nasturtium officinale*) was grown in beds as it is now, yet the street girls had cried bunches of the vegetable at least a hundred years before that date. They obtained them (or others did) from the rivulets and ditches of the suburbs. We read of their being picked about Tothill Fields, and the actual banks of the Thames west of London. Hackney also produced its wild Watercresses, and they are still cultivated in that neighbourhood. At a little nursery garden in the Wandsworth Road, near Vauxhall, called Springfield, there was a Watercress ground a few years ago, where once the plant may have grown wild. The celebrated gardens at Springhead near Gravesend were formed about seventy years ago by a Mr. Bradbery, who afterwards had several acres of land planted with Watercresses near Rickmansworth. Another memorable Watercress ground is also in Hertfordshire, near the Rye House, the scene of a memorable intended plot, and beside the Lea and the New River; while Watercresses are extensively grown near Croydon, and supported by the sewage of that town, but the method is not considered by all persons unobjectionable.—J. R. S. C.

ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday evening, the 20th ult., Mr. R. H. Scott, M.A., F.R.S., President, in the chair. T. G. Benn, Capt. C. F. Cooke, Francis Galton, M.A., F.R.S., Prof. S. A. Hill, B.Sc., Capt. A. W. Jeffery, G. Paul, F.G.S., F.R.H.S., R. Vevers, H. T. Wakelam, and E. Wells were balloted for and elected Fellows of the Society. The following papers were read:—

(1.) "The Great Storm of January 26th, 1884," by William Marriott, F.R.Met.Soc. This storm was remarkable for its violence and large area, as well as for the unprecedentedly low barometer reading at its centre. The author has prepared isobaric charts for each hour from noon on the 26th to 3 A.M. on the 27th, and by this means has tracked the storm across the British Isles. The centre of the depression appears to have first reached the north-west coast of Ireland at noon, and passed in a north-easterly direction over the north of Ireland and across the middle of Scotland, reaching Aberdeen about midnight. Its rate of progress was therefore about 30 miles an hour. A violent gale was experienced all over the British Isles, the greatest hourly velocity of the wind being 68 miles at Valencia at 11 A.M., 70 miles at Holyhead at 2 P.M., 63 miles at Falmouth at 3 P.M., 69 miles at Armagh, and 59 miles at Aberdeen at 5 P.M., 58 miles at Greenwich from 5 to 7 P.M., and 76 miles at Alnwick at midnight. Thunderstorms occurred on the south-eastern side of the depression, and travelled across the south of Ireland and England at the rate of about 30 miles an hour. The lowest readings of the barometer (reduced to sea level) yet reported were 27.32 ins. at Kilcreggan at 8.30 P.M., and 27.32 ins. at Ochertyre, near Crieff, at 9.45 P.M. In the southern part of England, directly after the minimum had occurred, there was a very sudden rise in the reading of the barometer, in some cases amounting to 0.08 inch in five minutes. From an examination of previous records it appears that there has never before been so low a barometer reading as 27.32 ins., so that this storm may be considered as one of the most remarkable that has occurred in the British Islands.

(2.) "The Height of the Neutral Plane of Pressure and Depth of Monsoon Currents in India," by Prof. E. D. Archibald, M.A., F.R.Met.Soc.

(3.) "The Sunrises and Sunsets of November and December, 1883, and January, 1884," by Hon. F. A. Rollo Russell, M.A., F.R.Met.Soc. The author gives a very interesting account of all the special features of the remarkable sunrises and sunsets which have been observed from November 8th

to February 2nd. The following are stated to be the marks distinguishing the peculiar sky-haze from cirrus:—

- 1, It is commonly much more evenly spread over the sky than cirrus
- 2, It is visible (except when very dense or in the neighbourhood of the sun) only about time of sunrise and sunset. During the day not the faintest trace obscures the clear azure, whereas cirrus becomes more distinct with more daylight.
- 3, When actually glowing with bright colour it loses its wavy appearance.
- 4, It has no perceptible motion, unless perhaps when watched through a long period.
- 5, It does not interfere with the clear definition of the moon or brilliancy of the stars.
- 6, It lies almost without exception in long streaks, stretching from between south-south-west and west-south-west to between north-north-east and east-north-east.
- 7, Its radiant point lies not on the horizon, but far below it.
- 8, If both cirrus and sky-haze be present, the sky-haze begins to shine with a red light soon after the cirrus has ceased to glow above the western horizon. When cirrus is present, however, there is in general a reaction of effects.
- 9, The sky-haze is destitute of the fibrous twists and angular branches of cirrus, and, since the sunlight leaves it in regular progression, it must be stratified at the same uniform level.
- 10, It has always been visible on every clear day for more than two months, and has been quite independent of wind and weather.

SOIL FOR NEPENTHES—A DEPARTURE.

"WHAT everybody recommends must be right" is an axiom not to be lightly disregarded; but it may be well to remember that everybody recommended peat for Ferns once, but now the most healthy and vigorous are grown in loam. Everybody also not long ago recommended porous pots for all kinds of plants, whereas it is now found they will flourish equally well, if not better, in pots that are glazed. Everybody now appears to recommend a rough, porous, almost soil-less compost for Nepenthes; even Mr. Abbey's advice is given on the follow-my-leader principle. No doubt good plants have been grown and are now produced in the fluffy medium recommended on page 163; but will they not grow better, hardier, sturdier, healthier, and produce more, finer, and better-coloured pitchers when grown in a more substantial medium?

Not many years ago one of the most healthy stocks of Nepenthes ever seen produced in the same limited time was raised and grown by Mr. Bause in the Melbourne Nursery, Anerley, for Mr. Wills. The plants were not of the largest, but for texture and colour of foliage, with proliferousness of pitchers, they equalled the best of their age and excelled most. In his experiments in growing Pitcher Plants the cultivator found that he could depart from the orthodox compost with advantage, and just as he receded from the fluff and treated the plants to a "bit of loam" so did their strength increase. This led him to adopt the same compost as he employed for Dracenas, or what most persons would consider excellent for Fuchsias. So satisfactory was the experiment that practically the whole of the plants, and there were several hundreds in 5 and 6-inch pots, were potted as if they required something more than air and water to feed on. The newer and more expensive kinds were without hesitation potted in the manner indicated, the pots of the size mentioned not containing more than 2 inches of drainage—in fact, not so much. They rooted in the soil with the greatest freedom, the fibres multiplying and coiling round the pots just as freely as those of a Pelargonium. There is no mistake about this, for I turned out many of the plants and examined them carefully. In every case those were in better condition that were growing in good soil than the few others that were left in the orthodox medium; indeed, if this had not been so, nothing is more certain than that the new practice would have been abandoned.

Although I am unable to state with exactitude the compost employed for the plants, yet it will be near enough for practical purposes to describe it as consisting of from one-half to two-thirds of sound turfy loam, the remaining portion of peat and leaf soil, with a liberal addition of sand and a 7-inch potful of horn shavings to a bushel of soil. When the compost was used it was pressed down with the same degree of firmness as in potting Dracenas.

If any error has been made in describing the method of culture, Mr. Bause, who is now established in the Portland Nurseries, South Norwood, will be able to correct it; also to indicate, if needed, any varieties that are not so amenable as others to the treatment in question.—EXPERIENTIA DOCET.

A NEW GARDEN.

THE KITCHEN GARDEN.

Enclosures.—Boarded fences, glass, stone, and brick walls have all been tried for enclosing kitchen gardens, the use of either material, except bricks, being more frequently influenced by certain local circumstances than from any decided superiority. For example, at Crowborough Cross on the forest ridge in Mid-Sussex there are extensive beds of thin sandstone so easily excavated and prepared for building as to cost less than any other material, and as this stone is

hardly so thick as an ordinary building brick it makes excellent garden walls. But I have seen walls of large square blocks of limestone so hard as to be very expensive both to excavate and dress that were a decided mistake. Glass walls in the form of narrow fruit houses are undoubtedly the best enclosures in cold bleak situations, insuring as

they do an abundant and regular supply of Grapes, Peaches, Nectarines, Apricots, Figs, Plums, Apples, and Pears. Unfortunately such enclosures are not only costly to build, but they involve a heavy subsequent expenditure for skilled labour to cultivate the trees. It should not, however, be forgotten that the culture of fruit in such houses is decidedly profitable, soon covering the expense of building as well as of cultivation. Growers of fruit for market may therefore certainly adopt this method with advantage, but it is only in exceptional cases that glass walls are likely to be built in private gardens. Wooden fences can hardly be recommended as permanent enclosures, but they continue sound for many years if due care be given to dressing the parts below the surface, and to painting the remainder. A useful form of this fencing was figured and described in full detail in the *Journal* in 1876, and it was republished in the "*Gardener's Year Book*" for 1877.

Brick walls are undoubtedly best for gardens generally, and bricks are more frequently used than any other material for this purpose. "In selecting bricks," says the "*Gardener's Year Book*," "clap them together—if they ring well, and when broken show that they are burnt through, they will answer the purpose. A hard clamp-burnt grey stock is all that is wanted for strength; for foundations use clinker-burnt marl stocks." Experience in building proves the importance of this advice, for without close supervision some soft bricks are certain to be used, to the subsequent disfigurement of the wall, as

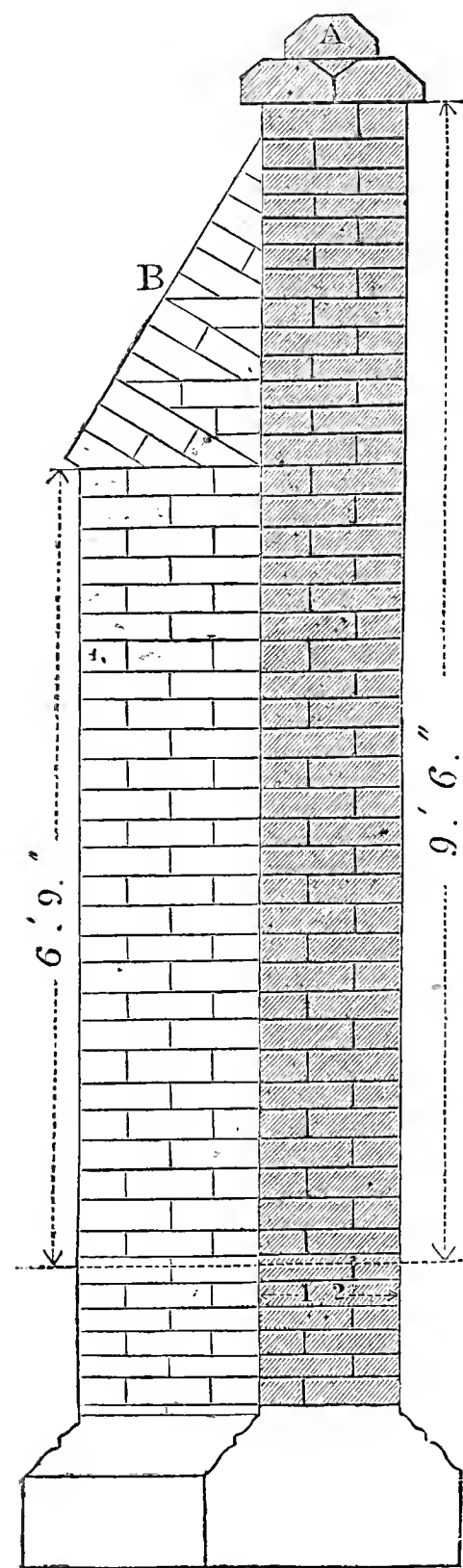


Fig. 39.

they will crumble after exposure to a sharp frost or two. I may add that the hints on building in the "*Year Book*" are thoroughly practical, and I have repeatedly found them afford information not to be

found in such books as Dodson's "*Art of Building*," and Allen's "*Building Manual*." For appearance, well-burnt red kiln bricks are decidedly preferable to clamp bricks, but they are more expensive, costing 35s. a thousand, as against 25s. a thousand for clamp bricks. Where rigid economy is not insisted upon, not only should kiln bricks be used, but the wall should be rendered as ornamental as possible.

The garden wall at Old-

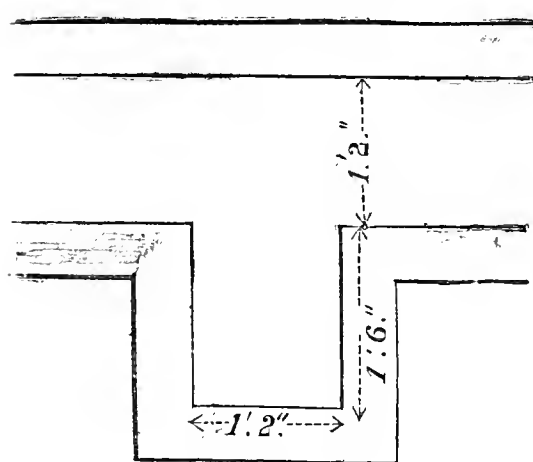


Fig. 40

lands is a remarkable example of good taste, and is a decided step out of the ordinary method. It was designed by the late Sir Digby Wyatt, and is of solid 14-inch brickwork, 9 feet 6 inches high from ground line to coping, and the coping is cleverly contrived with three of Gubb's coping bricks; A. fig. 39, imparting due importance and finish to the wall. Buttresses are built outside the wall as at B (fig. 39), where I have given full details of the brickwork to show how it is managed so as to have the ends of the bricks perfect outside the slope. A ground plan of a buttress is given in fig. 40, and the outer lines are added to show the width of the footings.

The small doors of this garden, designed by the same eminent architect, are so superior to ordinary garden doors that I have shown the construction and method of hanging of one of them fully in figs.

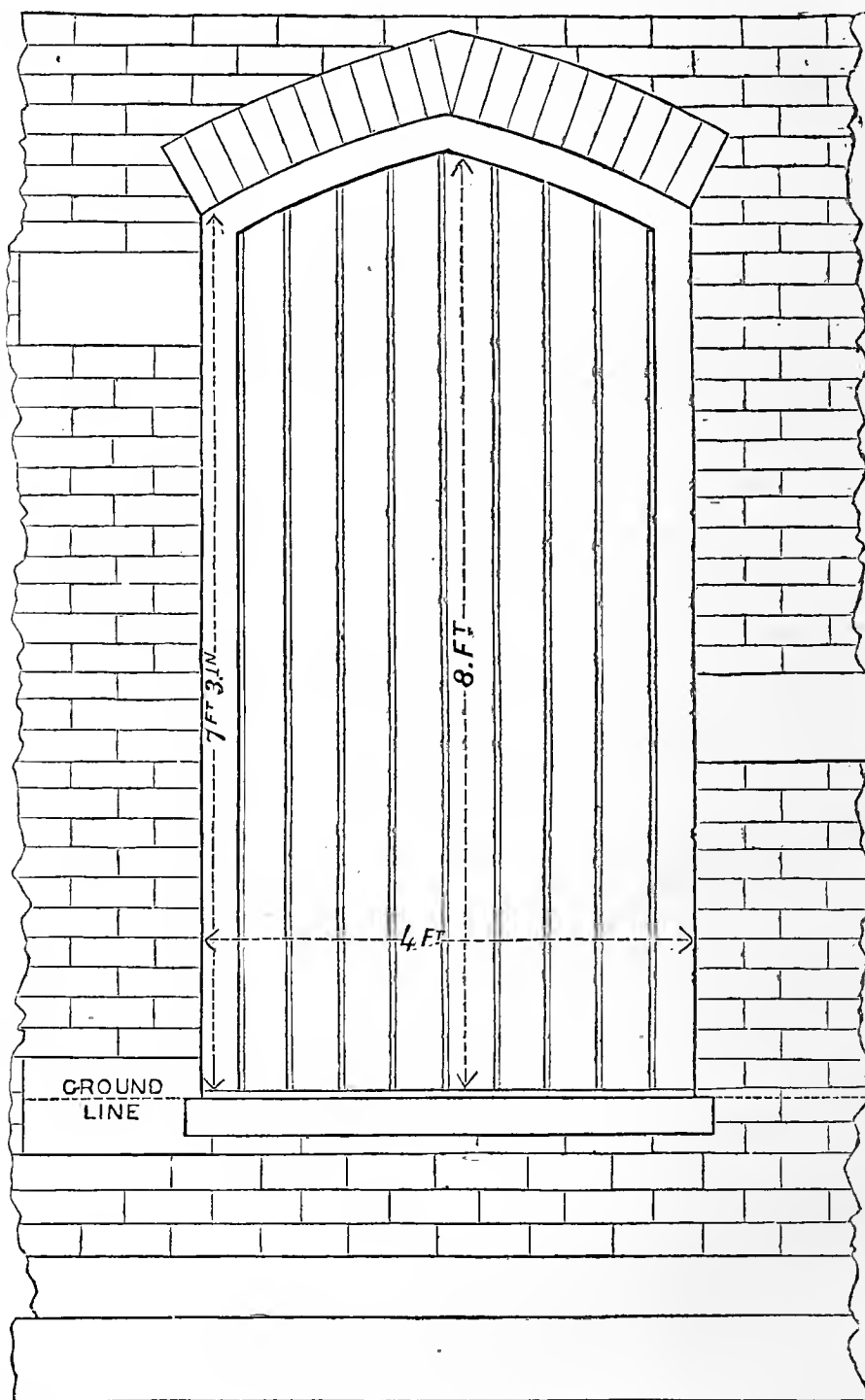


Fig. 41.

41, 42, and 43. They have been in constant use for upwards of thirteen years, and are practically as perfect as when first put up. This utility and durability is owing to the hanging, the bracing, and hinges, and to the absence of door frames. The hooks of the hinges are strongly bedded in stone blocks E (fig. 43), the lock and latch also fasten in a stone block D (fig. 42), which is inside the garden, where the doors shut against the wall in a rebate, F (fig. 43) made in the brickwork, so that the use of frames is avoided—a simple but important matter when it is remembered how prone timber is to shrink and swell when exposed to rain and sunshine. Fig. 41 shows the outer side neat and serviceable and also unclimbable, a by no means unimportant matter in a garden door.

The buttresses have been turned to account for the culture of Tea Roses, a different sort being trained around each buttress, the various aspects retarding or hastening the expansion of the flowers, and thus affording a valuable succession of bloom. Taken apart from this particular wall the transverse section A (fig. 39) is given as a useful

example of a strong garden wall, suitable for any position and perfectly safe under any exposure.—EDWARD LUCKHURST.

(To be continued.)

ROSES NIPHETOS AND SAFRANO.

BEING under the impression that Niphetos was one of the most valuable Tea Roses grown I was greatly surprised at Mr. Bardney's abuse of it (page 104). We find it free-blooming and as strongly scented as any, and being white it is of more value than any other variety, unless we except Maréchal Niel. One good bloom of Niphetos is worth four

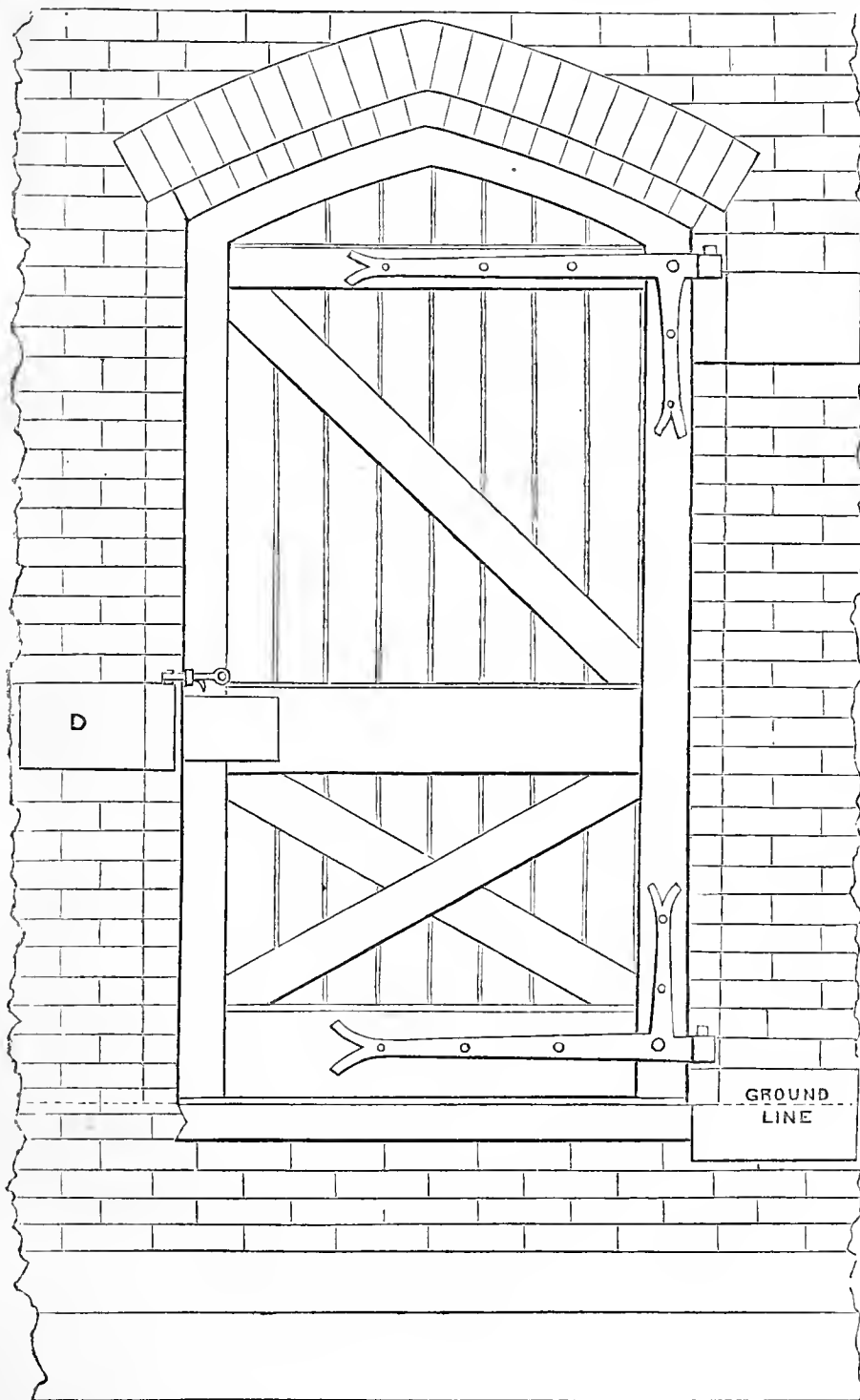


Fig. 42.

Safrano buds. To prove this I send blooms of Niphetos, Catherine Mermet, and Safrano, the former at the present time being, as you will find, as sweetly scented as any of them.—W. IGGULDEN.

[The blooms of Niphetos are quite as sweet as the others and much finer, but we cannot regard any of them as particularly fragrant. There

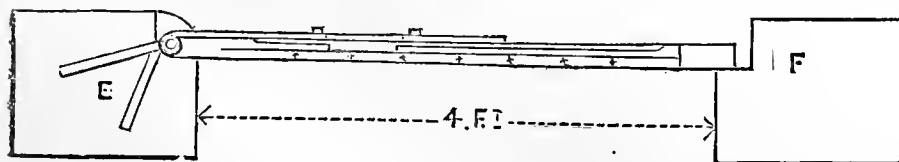


Fig. 43.

are more blooms of Niphetos sold in London at the present time than of any other Rose.]

ECHEVERIA RETUSA.

THIS useful free-flowering winter plant is of easy culture, and propagates freely from offsets taken with an inch or two of heel

when the plants have flowered, and inserted singly in 60-size pots filled to the rim with an admixture of nearly three parts light loam and one of leaf mould, with a dash of sand. They will root freely if then placed on the staging over the front pipes in a vinery and damped overhead two or three times a day with the syringe when the house is being damped, which, the plants being succulent, will be sufficient to keep them fresh until they have emitted roots, when they should have water in the usual way when necessary. When the plants have partly filled the cutting pots with roots they should be shifted into 48's and stood on sifted coal ashes in a frame in a warm aspect, and kept close for a few days, being syringed on bright afternoons, until the plants have made fresh growths, after which the frame should be ventilated freely on all favourable occasions, and sashes tilted a little at night. About the middle of July remove them altogether, which will not only afford the plants head room but also cause them to make a sturdy growth; moreover, the plants as they increase in size should have more room given them in the frame. Upon the approach of frost they should be removed to a pit or house where they could have plenty of light and air and a minimum temperature of 40° or 45°, which, with a rise of 10° or 15° during the day, would enable them to commence flowering about Christmas, and continue in flower for three or four months onwards. The plants, however, may be had in flower if necessary five or six months by introducing a small batch into the forcing house in October and at short intervals till Christmas.

From the time the plants commence throwing up their flower spikes they should have liberal supplies of weak liquid manure three or four times a week to the roots. The Echeveria under this notice is a valuable house and conservatory decorative plant, as it is also to cut from, inasmuch as the flowers, which are of a deep orange colour, Hyacinth-like in shape, and borne on trusses on the top of the spikes, owing to the nature and substance of the footstalks, keep fresh in water for several days after being cut. Specimens from 15 to 20 inches high and nearly a foot through, and which have been grown in the manner indicated in this paper, are at the present time round the edges of the staging in the conservatory very effective intermixed with Primulas, Cinerarias, Hyacinths, Cyclamens, and Ferns.—H. W. WARD.



HARDY FRUIT GARDEN.

Grafting.—Many sorts of Pears so often prove worthless owing to some defect of soil or climate that the planting of a given list of sorts that answer well in another locality frequently causes much vexatious loss of time. The stations are prepared, the trees planted, trained, pruned, and brought into condition for bearing fruit, which after all is unfit for anything but stewing. In all such instances do not destroy the trees, but re-graft them with some sort that has answered well in your garden. This may be done as soon as the sap is in motion, with wood of last year's growth that has been kept plump and fresh for the purpose by being thrust into soil on the north side of a building or wall so as to keep the buds dormant as was advised a month ago. This grafting is to be done upon the branches and not on the stems, each branch being shortened to a foot or less from its base according to its position. For example, the lower branches of a pyramid should be left twice as long as those near the top; but the branches of a standard or bush are reduced to an uniform length. One scion is inserted into each branch either by cleft or whip grafting, the first being preferable for large, and the last for small branches. Any favourite method may be followed if only due care is taken to make the inner bark of the scion and stock meet, to bind them together securely, and to exclude air from the point of union by covering it with grafting wax or prepared clay. By thus grafting upon the branches a tree is brought into full bearing in half the time required for the development of a new stem and branches. Old trees in a state of barrenness, with stem and branch intact, and with thick, soft, healthy bark, become wonderfully fruitful if the branches are shortened moderately and a graft inserted in each of them. The best guide in shortening the branches is to remember that the growth of the scion is required solely for the production of fruit, and therefore it must be kept well out in sunlight and air away from the interior of the tree, which forms an admirable support and foundation for it. There are few more pleasing sights in fruit culture than old trees so rejuvenated. We have had such complete success with the plan in our own practice that we heartily commend it to the notice of our readers. Grafting young nursery stock is so clearly a matter apart from the duties of a private garden that it is unnecessary to explain the process here.

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—The fruit having set

thickly will need thinning before disbudding can be brought to a close; and as the main principle in Peach-forcing is to carry on every operation without causing a check, a few of the least promising fruit should be removed daily as disbudding is performed, and at the same time pinch back many of the growths that are retained to attract the sap to the fruit, and which are afterwards removed, for although Peaches fruit freely on spurs formed early in the season, they never produce such fine fruits as are obtained from clean short-jointed growths a foot or more in length. With the increased sun power, and as cold cutting winds may be expected, sharp currents and sudden changes of temperature must be guarded against by ventilating early and gradually, and reducing it in the same way, rapid fluctuations being highly injurious. Until the stoning is past it will be advisable to continue the low night temperature previously advised, or 60° in mild weather, and 5° less in severe weather, with an advance of 10° to 15° by day in sunny weather, but when dull 65° should be the maximum until the stoning is completed. Syringe the trees twice on fine days, but be more sparing of water when dull, always syringing early in the afternoon, so as to get the leaves dry before night. When it is not advisable to syringe the trees counteract the drying influence of fire heat by damping the floors and borders, and sprinkle the floors before nightfall with tepid liquid manure.

Succession Houses.—Disbudding must be attended to, also thinning the fruits where too thickly set. In later houses observe a medium course with regard to moisture until the fruits are set and swelling, when the directions given for the management of the early house will apply. Inside borders must not be allowed to become dry, as many crops of Peaches have been injured or lost through being kept too dry when in active growth.

MELONS.—Due attention must be given to stopping, thinning, and tying the young shoots as they advance, also in impregnating the blossoms on fine days when the pollen is dry, as it does not do to leave this important matter to chance or insect agency. When the flowers are set stop the shoots one joint beyond the fruits, and when these are swelling they should be thinned, leaving about four on each plant, or less, according to the vigour of the plants and the size the fruits are wished to attain, having them as evenly distributed as possible. When the fruits are swelling it will be necessary to earth-up the roots, applying the soil firmly, and having it the same temperature as the bed. Give a good watering previously to earthing-up the roots with tepid liquid manure in a weak state. The bottom heat should be kept steady at 80° to 85°. Admit a little air at 75°, but not so as to lower the temperature. Increase the ventilation with the sun heat, keeping the temperature at 80° to 85° through the day, and close at 85°, then syringing moderately, and allow an advance to 90°. Keep the temperature at 70° to 75° in the daytime when the weather is cold or the sun obscured by clouds, and 70° at night, falling to 65° in the morning. Omit syringing the plants in dull weather, but maintain a genial condition of the atmosphere by damping surfaces in the morning and afternoon, keeping the evaporation troughs filled with liquid manure. Successional sowings and plantings will need to be made according to the requirements of the establishment. Plants in dung-heated frames will need a little earth added to the sides of the hillocks or ridges as the roots protrude, but water will not be much needed, as the moisture from the fermenting materials will be sufficient in most cases, and when needed it must be given in a tepid state, avoiding wetting the foliage and collar of the plants. Keep the collar free from lateral growth, and remove every alternate lateral on the principal growths when they are quite young, reserving only four shoots to each plant, training two to the back and the other two to the front of the frame or pit, and stopping when about a foot from the sides. See that the linings are regularly attended to, employing good night coverings on the lights. Ventilate carefully, but lose no opportunity of doing so, and close early in the afternoon.

CUCUMBERS.—Afford plants in bearing liberal supplies of tepid liquid manure, syringing moderately in the morning and at closing time in bright weather, but rest satisfied with sprinkling the paths and beds twice a day in dull weather, so as to counteract the drying influences of fire heat, and maintain a growing atmosphere, keeping the evaporation troughs filled with liquid manure, or, failing those, sprinkle the floors before nightfall with liquid manure. Careful and regular attention must be given to tying and removing superfluous shoots or fruits, the greatest evil in Cucumber-growing being overcrowding and overcropping.

Young plants are now making vigorous growth and need training regularly and not too closely over the trellis. Stop the shoots when they have extended over about two-thirds of the trellis, and the laterals or side shoots showing fruit may be stopped a joint or two beyond the fruit. Remove all superfluous fruits and most of the male blossoms. Water must be given as needed in a tepid state, and a little soil previously warmed added to the sides of the ridges or hillocks from time to time as the roots protrude until the space is filled. The linings of dung-heated frames or pits must be well attended to, keeping up a reserve of fermenting materials for making new beds.

PLANT HOUSES.

Stephanotis floribunda.—Plants that have up to the present time been kept cooler and in a drier atmosphere than the stove will, if introduced into brisk moist heat, soon commence growth. If potting is needed, this may be done as soon as the roots commence advancing, employing a compost of good peat and loam in equal proportions, to which is added a little bonemeal and broken charcoal. Do not disturb the old ball more than is necessary in removing the drainage from amongst roots and loose soil from

the surface. The pots in which they are to be grown should be liberally drained and the soil pressed in firmly. After potting, supply water carefully until the roots are growing freely. If potting is not needed, top-dress with some rich compost, and feed the plant liberally when in active growth. If the plant is trained upon a trellis elevate it close to the glass, and as the new growths extend secure them to small cords. If any young plants are needed take off the growths with a heel when about 3 inches in length, and insert singly in small pots in sandy peat; give a good watering after insertion, and place them in a close frame or under a bellglass.

Clerodendron Balfourianum.—The earliest plant that was started will now have young growths that are in the best condition for striking. The portions selected should be about 3 inches in length, and taken off with a sharp knife close to where they join the old wood. Insert two cuttings, one on each side, of 2 or 3-inch pots, and, after watering them, place them in a close frame, and nearly every one will form roots. These when ready should be placed into 6 or 7-inch pots and grown on in any warm house, and before the close of the season will have well-ripened shoots several yards long. The shoots the following season may be trained round four or five stakes and forced into bloom for the side stages of the stove, or retarded for flowering in the conservatory during early summer. Young plants produced by this method are invaluable for forcing.

Bougainvillea glabra.—Young shoots taken off and treated as advised for the *Clerodendrons* will soon root, only these should be inserted singly. If grown and potted on until they are placed in 8-inch pots, they will be found useful for flowering in the stove another year, or in the conservatory during the summer. By preparing plants of this description for cool structures that have to be kept gay during summer an attractiveness is produced which cannot be obtained by the ordinary summer-blooming plants. During summer there is too much sameness in conservatories and other similar structures, which can only be broken by the preparation of such stove plants that will flower and flourish for some time without injury. The labour in the production of these quick-growing plants is little. Small plants of *Allamanda Wardleyana* (Hendersonii) may be prepared and grown on for the same purpose.

Ixoras.—These plants may now be repotted if they need it, and will do well in either peat or loam, or both combined; the former with a good dash of coarse sand is the best, as peat does not become sour if good through constant watering the same as loam. The plants to be potted now should have been pruned back some time ago, and have commenced growth. If this is not done no time should be lost, and the operation of potting postponed for a time until they have commenced growth. In potting the roots should be disturbed as little as possible, and the new soil should be pressed firmly into the pots. After potting water must be applied with great care until the roots are growing freely. If practicable, plunge the pots in a bottom heat of 80° to 85°, and the top heat at night from 65° to 70°. Syringe the plants twice during fine days. If specimen plants are wanted tie out the shoots as growth extends, bringing the strongest well down to furnish the base.

Young stock may be raised by inserting the tops of the shoots that are pruned back; these should be inserted singly in 2-inch pots containing sandy soil, and placed in a close frame until rooted. These young plants can be grown on without being stopped, and are invaluable, with one large truss upon them, for purposes of decoration. If plants with from four to six shoots are required, the young plants must be pinched until the requisite number are formed, and then allowed to grow without stopping until they flower.

Seeds of *Primulas*, *Gloxinias*, *Begonias*, *Cinerarias*, *Cockscombs*, and *Celosias* may now be sown. The three first mentioned should be sown upon the surface of the soil in the pots or pans employed. The surface soil for the former should be light, and composed principally of leaf mould that has been passed through a fine sieve. For the second and third a sandy surface is preferable. The seeds of the others may be lightly covered with any fine open soil. Water with a fine rose after sowing and cover with a square of glass, and keep the pots or pans shaded from the sun until the seeds germinate. Care must be taken after the seed is once sown that the surface soil never approaches dryness, or the seeds may fail to germinate freely. After sowing stand or plunge the pots or pans in a heated structure.

THE FLOWER GARDEN AND PLEASURE GROUND.

Formation of Hedges.—It is not yet too late to form new hedges or repair old ones. The common Yew and Hollies are both well adapted for the purpose, but the latter should not be planted till the end of this month. Procure strong plants, and let the positions for them be well drained, manured, and deeply dug. If each plant touches those next it a good hedge will soon be formed, as there is no necessity to cut them back. During the first year they must not be allowed to get dry at the roots, and, as a partial preventive, mulch early either with strawy manure or grass from the mowing machine. For surrounding extensive grounds and plantations a good hedge may be formed either with a mixture of Privet and Quick Thorn, or where the positions are not very wet, with Beech and Quick Thorn. These, too, ought to have well-prepared positions, and may be planted in double lines about 12 inches asunder, and the plants the same distance apart and angled. Cut them down to within 6 inches of the ground, shortening them the second season to within 12 inches of where last shortened, and again the next spring in a similar manner, the object being to secure good bottoms, without which a hedge is of little service. All young hedgerows should be well protected, have the ground annually lightly dug on each side of them, and be kept clean.

Pruning and Cutting Down Shrubs.—When trimming the fronts of shrubberies and other prominent positions use only the knife or secateurs, as, if other tools are used, the leaves are almost certain to be much disfigured. Nearly all the shrubs and evergreens are improved by occasional prunings, both in order to restrict those overgrowing their neighbours, and also to improve the form of various specimens. Conifers, where growing irregularly, may be freely pruned, and if there are two or more leaders or central growths the best should be preserved and the others cut away. If in any case the leader is damaged, select a good branch, and stake this upright in the centre of the trees, and it will soon take the lead. Any evergreens, such as common Laurels, Portugal Laurels, Hollies, Yews, Sweet Bays, Laurustinus and Box, as well as flowering shrubs that have either grown too tall or have naked stems, may safely be improved by being cut down to near the ground, as when thus treated they seldom fail to break freely and strongly. A saw is the best for this work, and the wounds should be rounded off with a knife to facilitate healing; jagged wounds, on the contrary, holding water, which encourages decay. The mere fact of cutting down sickly evergreens and shrubs, however, will not renovate them, as these in most cases require lifting, the roots being lightly shortened and replanted in good fresh soil. On clayey soils plant rather above the level, and such soils will be much improved if surface or open drains are cut, and good outlets provided.

Lawns.—These are much benefited by occasional rollings at this time of the year, this fixing the grasses prior to their forming entirely fresh roots, besides firming the ground, also removing inequalities when these are not very large. Dry days are best for this work, and prior to rolling the wormeasts should be distributed with brooms as much as possible, but do not collect them, as they serve to keep the ground from being exhausted. Lawns seldom get a dressing of manure of any kind, but they need it in a great many instances (this encouraging the grasses and keeping down moss and Daisies) soot, lime, and wood ashes mixed with six times their bulk of fine loam or garden soil. Applied liberally and well worked in with iron rakes or bush harrows, will serve the double purpose of destroying the moss and improving the sward. Where the grass is thin, sow seeds as mixed and supplied by the vendors. Badly drained lawns are quickly improved by cutting a few drains, and it is not yet too late to do this.

Roses.—Any that have been laid in during the winter ought to be planted as soon as the state of the ground permits. If they are to go where Roses have been growing previously, a liberal quantity of fresh loamy soil ought to be given them. Dwarfs on the Manetti stock must be planted deeply, so as to bring the point of union with the graft or bud below the soil. Standards should be staked up at once. They may be pruned at once, and in warm dry localities many of the established may also be pruned, but in low-lying positions, where late frosts are experienced, it should be deferred another fortnight.

Herbaceous Borders.—Many plants in these, notably the Phloxes, Asters, and Japanese Anemones, if not lifted and divided in the autumn, should now be attended to, otherwise they become too much crowded. They are also gross feeders, and lifting admits of thoroughly enriching the borders. Better have a few strong crowns or shoots than many weakly ones; therefore freely thin out all not divided and at all crowded, and fork into the borders a liberal dressing of either well-decayed manure or good leaf soil.

THE BEE-KEEPER.

ABOUT LIGURIAN BEES.

I AM glad to notice that a spirit of inquiry is at last being aroused concerning the merits or demerits of foreign bees, and the wisdom or unwisdom of introducing them into our apiaries with the object of improving (?) the strain or breed of bees in the United Kingdom. I have long ago formed a very decided opinion on the question, but felt some diffidence in hastily expressing it, because of the almost unanimity with which modern writers on bees have sounded the praises of Ligurians. It is becoming quite certain that sooner or later the truth must be told, and so I venture to give publicity to some facts which bee-dealers as well as bee-keepers will do well to consider if they value their own interests.

No writer that I know of has emphatically condemned these bees except Mr. Pettigrew, and his opinion lost the weight it would otherwise have possessed for two reasons—first, he had no personal experience of Ligurians; and second, because he wrote just as strongly against bar-frame hives, declaring they possessed no merit to recommend them in preference to skeps. We cannot, therefore, wonder at bee-keepers taking a great deal for granted when all the high authorities were in favour of the new race of bees, and the bee journals were full of advertisements of pure Ligurian queens, with marvellous accounts of their superiority over the common black bees. Nor should we omit to mention the fictitious value which high prices gave them in the eyes of those who think that nothing can possibly be good which is not dear.

I feel quite certain that we should ere now have seen the last of Ligurian bees, so far as making a profitable business out of their sale, but for the curious fact that almost everyone is delighted with them

on a first acquaintance. The novelty is pleasing, the care required in introducing a new queen lends a charm to the operation, and, when success is assured, the pleasurable anxiety with which the first young Ligurians are watched for adds to the interest taken in the little strangers. Then comes the extraordinary fecundity of many Italian queens, the immensely strong stocks and numerous swarms which are the natural outcome of this, and finally their extreme docility. This is their greatest recommendation. The delighted bee-keeper can handle his new bees so easily, rarely receiving a sting, he becomes quite an expert, and says so much in their favour that he is afterwards very unwilling to acknowledge his mistake, and takes much convincing that all is not quite so certain as he supposed. And so he makes excuses for his want of success with his new hobby—"the season is unfavourable;" "they will do better next year," and so on. As time passes, the truth begins to dawn upon him. He never had robbing to such an extent before; his surplus honey is not worth harvesting; he buys sugar in autumn by the hundredweight—probably a touch of foul brood startles him; his bees are much more troublesome than they used to be; and after a few years' experience with Ligurian bees he is a wiser and poorer man, and ends by either giving up bee-keeping altogether, or becomes so thoroughly dissatisfied with Ligurian bees that the very name is odious to him.

This is not an overdrawn picture. I assert that it is the experience of 80 per. cent. of those who have tried the experiment of ligurianising an apiary. It would occupy too much of your space were I to go through my own experience in detail, so let me say very briefly I was often asked in years gone by why I did not "go in" for Ligurians. I thought my objection a sound one. It was this. I had not the least prejudice against them, but I had always found my black bees so satisfactory I did not care to make a costly and troublesome experiment without being quite sure of an adequate return. However, circumstances occurred one autumn a few years ago which induced me to give Ligurians a trial. I procured some half-dozen queens from different dealers and successfully united five of them to as many good black stocks. The result of my experiment was very much as described above, except that I should have to colour the picture a little more strongly to faithfully reproduce what I suffered. Eventually I got rid of Ligurians, and at the present moment if I were offered the chance of having my apiary ligurianised free of cost with the best strain extant, and a bonus of £10 tacked on to the gift, nothing would induce me to accept it.

It is a dictum among lawyers while estimating the value of a witness's evidence, to take into consideration two main points—first, his technical knowledge and practical experience of the subject at issue; and second, the value of his evidence as bearing on the case, and the amount of corroboration it will receive. So allow me to say, as illustrating the value of my own testimony on the first point, I never harvested 15 lbs. of surplus honey from a Ligurian stock yet, and the average amount would not be 3 lbs. per hive, while since my ligurianising experiences commenced I lost in one year nineteen stocks of bees out of a total of thirty-two hives from foul brood alone; and all this, as I must impress on my readers, happened, not because I was an enthusiastic rash-handed novice in apiculture, opening stocks daily, slinging right and left from combs containing unsealed brood, &c. (I never placed a comb in the extractor with unsealed brood in it) behaving as injudiciously as these young bee-keepers frequently do; nothing of this kind brought about my disasters, and yet Ligurians with me were a complete and thorough failure. Next week I will add the experience of some other bee-keepers on this subject in corroboration of my estimate of Ligurian bees.—W. B. C., *Higher Bebington*.

TRADE CATALOGUES RECEIVED.

Thomas S. Ware, Hale Farm Nurseries, Tottenham, London.—*Catalogue of Choice Hardy Perennials (Illustrated), and Lists of Chrysanthemums and Climbing Plants.*

J. Backhouse & Son, York.—*List of Alpine and Herbaceous Plants.*

J. Carter & Co., High Holborn.—*Catalogue of Farm Seeds.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspon-

dents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (Young Gardener).—The work you name is now out of print, and can only be obtained from dealers in second-hand books, or, failing this, possibly by advertising for a copy, but we believe it is not very readily procurable. (J. C.).—Our stock of "Vines at Longleat" is all sold. We do not know whether Mr. Taylor intends preparing another edition or not.

Dendrobium nobile not Flowering (M. H.).—As the plants grow well but produce flowers sparsely the pseudo-bulbs are probably not well ripened. After the plants have made their growth place them as near the glass as possible in a warm light house, only giving sufficient water to prevent the leaves flagging, and affording very light shade, and this only if needed to prevent scorching. Carry out this practice intelligently, and we think the plants will flower. From 1 to 2 fluid ozs. of petroleum well mixed in a gallon of water by constant and violent agitation will destroy scale on Camellias. It is not less effectual if mixed in a solution of soft soap or Gishurst compound.

Duke of Buccleuch Grape (J. M. B.).—We have never seen finer examples of this noble Grape than on Vines established on their own roots, but we doubt not that a healthy stock of the Muscat of Alexandria would prove a good foster parent for the variety in question. Mr. Dewar of Beechwood has found it to succeed well on West's St. Peter's, as one rod of the Duke inarched on that variety produced twelve bunches, the lightest weighing 2 lbs. 8 ozs., and the heaviest 4½ lbs. From one bunch the berries without the stalks weighed 2½ ozs.

Mushroom Beds in Shed (Uxbridge).—Mushrooms will grow equally well on flat beds a foot deep, or as ridges in a shed. With one bed 4 feet wide down each side of the shed you would have a bearing surface of 80 square feet; with lean-to beds 2 feet wide against the walls, and a central ridge 3 feet wide down the centre, the sloping sides of the ridges 3 feet high, you would have a bearing surface of 160 square feet; this, however, could be equalled by having two tiers of flat beds along each side of the shed, as is customary in Mushroom houses, one bed being on the floor and the other 2 or 3 feet above it in a strong wooden bin. The manure requires the same preparation whether it is to be formed into ridges or flat beds. These latter are not suitable for the open air unless they can be effectually sheltered from heavy rains.

Swarm of Insects (R. C.).—The insects forwarded belong to that common species *Julus terrestris*, one of the snake millepedes. This and other species in the genus, when they occur in gardens, feed both upon animal and vegetable substances. They devour slugs and snails, also soft-bodied insects, &c., and especially visit diseased or decaying roots. But as it seems to be undeniable that these millepedes will attack healthy plants, they must be placed upon the list of our garden foes. The bulbs of Lilies have been observed to be seriously damaged by them, also the roots of Primroses and Heartsease, and various vegetables, Potatoes, Cabbages, and Beans for instance. As the texture of the insect renders it hard to kill without using applications that are likely to damage plants, trapping them has been advised. Numbers will creep into little pots filled with horse-droppings or decayed roots, and they may also be captured by laying about scraped-out Potatoes and Apples.

Ribbon-border Arrangement (W. B. H.).—The flowers you have are sufficient for several combinations of colour. If the border is to be looked at from one side only, then begin in front with—1, *Cerastium*; 2, *Alternanthera*; 3, *Blue Lobelia*; 4, *Flower of Spring Pelargonium* with the flowers kept picked off; 5, *Pink Pelargonium*; 6, *Golden Bronze Pelargonium*; and 7, *Iresine Lindeni*, which gives a soft, chaste, yet lively combination of grey, carmine, blue, white, pink, dark brown and yellow, and deep crimson. Or for a bolder but equally harmonious effect take—1, *Alternanthera*; 2, *Cerastium*; 3, *Lobelia*; 4, *Scarlet Pelargonium*; 5, *Flower of Spring Pelargonium* with the flowers kept picked off; 6, *Iresine*; and 7, *Yellow Calceolaria*. But if the border stands out upon the lawn, and is approached from all sides, then there must be a balance of colour on each side in this way—a central row of pink *Pelargonium*, a row of *Flower of Spring Pelargonium* on each side of it, followed by rows of blue *Lobelia*, and with *Cerastium* outside; or yellow *Calceolaria* for the central row, *Iresine* on each side of it, *Lobelia* next, and *Alternanthera* outside.

Lime Water (W. H.).—It is immaterial what quantity of lime you use. If you place a lump weighing half a pound in four gallons of water that will be quite sufficient, and if you place in twice the quantity the lime water will be no stronger. If there is any sediment of lime at the bottom of the vessel it is proof that the lime water is strong enough, and as strong as it can be made. It must be used perfectly clear, and will then be quite safe for the majority of plants, and will bring out any worms that may be in the soil; but we hesitate to incur the responsibility of advising you to apply it to "Azaleas worth £8 a piece," as we have heard of its injuring Azaleas, and we should try its effects on a small plant or two of little or no value, and wait a few weeks for the effects before using to a number of larger specimens. Perhaps some of our readers who may have applied lime to Azaleas for eradicating worms will state their experience as to its efficacy and safety or otherwise. We do not remember receiving any soil from you; however, as your plants are doing well the omission is of no consequence. We shall be glad to see flowers of your Primulas. Embed them in a little damp moss, and send in a small wood or tin box, so that they may arrive fresh and uninjured.

Grafting Wax (F. J.).—There are various preparations used in grafting fruit trees. Some of the mastics require to be used warm, but the following may be prepared and used without being heated:—Yellow wax, 1 lb.; turpentine, 1 lb.; Burgundy pitch, 8 ozs.; mutton suet, 4 ozs. Melt all together

and mix thoroughly, and leave them to cool. Form the mass into small balls, as it will not stick to the fingers, and use them when opportunity offers. Liquid grafting wax is a very useful application, and is, perhaps, the most convenient for the purpose of all the mastics used for covering wounds and grafting. It is of the consistency of varnish, and is applied very thinly with a brush. Care must be taken not to lay it on thickly, for the surface hardens so rapidly the alcohol is prevented from evaporating. Rosin, 1 lb.; beef tallow, 1 oz.; spirits of turpentine, one tablespoonful; alcohol (95 per cent.), 6 ozs. Melt the rosin over a slow fire; when melted take it off and add the beef tallow, stirring it constantly; let it cool down somewhat, mix the spirits of turpentine little by little with it, and at last the alcohol in the same way. Should the alcohol be added while the mass is too hot much will be lost by rapid evaporation; if, on the contrary, it is too cool, it will form a viscid lump, and must be slightly heated again. Stirring briskly is indispensable to mix the ingredients thoroughly. In well-corked bottles it keeps for years. If in course of time it becomes too thick, the addition of some alcohol will make it liquid again. For this purpose it must always be warmed. It is a good plan to put the bottle containing it in boiling or hot water to accomplish this. They are generally used in preference to clay in nurseries where grafting is extensively carried on, because more expeditious; but where only a few trees are grafted well-prepared clay answers every purpose.

Wood Ashes (Suffolk Boy, Quebec).—We have no analyses of the wood to which you refer. The injury caused by the excessive use of the ashes was due to caustic potash. As to the quantity to use beneficially for different crops no one can determine this so well as yourself. The same quantity that you used with benefit to Carrots will be equally serviceable for Potatoes and most other garden crops, including Vines and fruit trees. For dressing young seedlings the ashes should be mixed with sand or dry soil to the extent of one-half, more or less, as you may find satisfactory. You ask for information that can only be obtained by experiments, and in this country the materials are not present for determining the points in question.

Vine Roots Cankered (G. S.).—You ask simply, "What is wrong with the Vine roots, cause and cure?" The brevity of your letter indicates that you prefer a brief reply, and in the absence of data to guide us we can only say that there is probably some corroding substance in the border, and the remedy is fresh and suitable soil.

Peach Buds not Swelling (J. L., Sussex).—Nearly all the buds are dead but what has caused them to dry up no one can tell without knowing the treatment which the trees have received during the past season. We can only say the growths are extremely poor and immature, but this is scarcely sufficient to account for the withering of the buds. Drought at the roots, a bad attack of red spider on the foliage, or dressing the stems with a strong insecticide, are calculated to have a disastrous effect on the buds. Whether we have indicated the cause in your case we have no means of knowing, but if the shoots sent are fair examples of the trees we have no hesitation in saying they have been either neglected or mismanaged in some way or other. The temperature has been too high, but that is not the cause of the evil in question.

Potting Azaleas and Camellias (M. R.).—You will find the information you require on potting Azaleas on page 176 last week. Pay particular attention to the instructions there given to pot firmly, and to the condition of the roots as to moisture at the time of potting. Repotting these plants when the soil in the pots is either very dry or very wet, or of saturating the fresh compost immediately after it is used, is fatal to success. See also our reply to "J. M." on page 178. The particular compost for and time for repotting Camellias depends very much on the condition of the plants. On this subject we cite from an article published in the Journal last year:—Potting is best done in early spring just as the plants are commencing growth, or trying to do so, by those who have a stove or other structure where the temperature ranges from 55° to 85°, and where syringing can be done freely and a moist atmosphere maintained. Those who have not such convenience, but possess a vinery in which the Vines start in a natural manner, may repot their Camellias when the Vine leaves fairly cover the roof, as the temperature suitable for Vines at that stage and onwards will be also suitable for the plants under notice. If the pots can be placed on a bed of leaves or other moist base it will be decidedly advantageous to the plants. With only a greenhouse at disposal the repotting should be deferred until the night temperature is 60° or thereabouts, and the plants should be grouped where they can be kept as close as possible, also shaded. This with light syringings will lessen the necessity for frequently watering the soil, and healthy root-action will be the sooner reduced. A good guide for repotting Camellias when there was not the requisite convenience for dealing with them before, is when the young growths cease to extend, and just as the last-formed leaves are attaining their full size; but the longer the potting is deferred the greater must be the care in preserving the healthy roots and preventing them drying; also the greater is the necessity for heat, shade, and moisture for effecting the recovery of the plants. As to soil, take half rather light but decidedly turfy loam containing no lime, the remaining half to consist of very fibrous Heath or Azalea peat—not bog—and leaf soil from leaves that have not fermented; mark the condition. To this add crushed charcoal and silver sand liberally, say together, so as to form an eighth part of the bulk. Mix the whole thoroughly. If this compost will not incite the production of roots nothing will.

Bulbs after Flowering (Idem).—Cut off the spikes as soon as the flowers fade to prevent the formation of seed. Place the plants in the lightest position at command, such as on a shelf in a greenhouse or in a frame from which frost is excluded, and water them as carefully as before flowering, giving a little weak liquid manure occasionally. The stronger and healthier the foliage is under the influence of sun and air, and the longer it is maintained in a fresh state, the better will be the condition of the bulbs for flowering next year.

Self-Improvement (E. A. B.).—Nothing could be more commendable than the manner in which you are employing your leisure hours; but we would counsel you not to attach too much importance to "taking lessons," nor to measure their value by the money expended alone. The lessons in question you must only regard as the beginning of your educational career.

In this respect they may be most useful, as they either will or ought to afford you a sound basis for subsequent acquirements. A thorough knowledge of the subjects named in your letter can only be had by a long course of study and persevering application, and it will depend entirely on your aptitude in turning your knowledge to account as to whether it will be of substantial service to you. We are glad to observe a decided improvement in your caligraphy, a neat clear style of penmanship being always desirable, and often of very great advantage to a gardener. You will do well, however, to guard against an extremely florid method, which, indulged in, will be considered pedantic. A correct and concise manner of expression must not be overlooked. This is of greater moment than good penmanship, and we point it out to you because your letter contains two errors in grammar and the repetition of a sentence that mars the composition. Shorthand may be useful to you or not, just as it is practised diligently. So far from your being made "perfect in six months," you will never be perfect unless you continually practise the art. Even the most expert shorthand writers find constant practice necessary for maintaining their proficiency. A knowledge of book-keeping is essential, also of geometry, and to a certain extent mathematics, while of chemistry as applied to agriculture and horticulture you are not likely to learn too much, nor of botany. But you may easily attempt too much at once and err by relying too much on others. Proficiency in grammar and composition will be of greater service to you than shorthand, but if you can become competent in all so much the better. It is not possible for us to estimate the money value of any lessons you may receive, as these necessarily vary. We note with approval the efforts you are making to attain knowledge, and you have our best wishes for your success. Either you are fanciful or we are, but we do not admire the use of blue ink on tinted paper of such a flimsy texture as you use, as letters thus written are the reverse of easy reading, and are not likely to be particularly acceptable to ladies and gentlemen to whom you may have to write in the transaction of business.

Names of Fruits (C. Holtby).—The Pear is Beurré Rance. The Apple is not known. (H. W.).—The Apple is the Pig's-nose Pippin. The shrub is Veronica elliptica, a spray of which was figured on page 145.

Names of Plants (Reader).—1, Pteris longifolia; 2, Phlebodium aureum. (C. O.).—Ruscus hypophyllum. (G. Cummins.).—Erica vernix coccinea.

COVENT GARDEN MARKET.—MARCH 5TH.

OUR Apple market is very dull, large quantities of common stuff being on hand. Hothouse Grapes are shy; prices rapidly going up. Vegetables without alteration. Market generally quieter.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	to 5 0	Nectarines dozen	0 0	to 0 0
" per barrel	0 0	0 0	Oranges 100	6 0	10 0
Apricots box	0 0	0 0	Peaches dozen	0 0	0 0
Chestnuts bushel	10 0	0 0	Pears, kitchen .. dozen	1 0	1 6
Figs dozen	0 0	0 0	" dessert .. dozen	1 0	5 0
Filberts lb.	0 0	0 0	Pine Apples English .. lb.	2 0	3 0
Cobs per lb.	1 3	1 6	Plums and Damsons ..	0 0	0 0
Grapes lb.	5 0	10 0	Strawberries oz.	0 0	1 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Beans, Kidney .. 100	2 6	0 0	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 8
Broccoli bundle	0 9	1 0	Parsley .. dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	1 6	2 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney .. cwt.	4 0	5 0
Carrots bunch	0 3	0 4	Rhubarb bundle	0 4	0 0
Cauliflowers dozen	2 0	3 0	Salsafy bundle	1 0	0 0
Celery bundle	1 6	2 0	Scorzonera bundle	1 6	0 0
Coleworts doz. bunches	2 0	4 0	Seakale basket	1 0	1 6
Cucumbers each	1 0	1 6	Shallots lb.	0 3	0 0
Endive dozen	1 0	2 0	Spinach bushel	2 6	3 6
Herbs bunch	0 2	0 0	Tomatoes lb.	2 0	2 6
Leeks bunch	0 3	0 4	Turuips bunch	0 3	0 0
Lettuce dozen	1 0	1 6			



GRASS SEEDS FOR LAYING DOWN LAND TO PERMANENT PASTURE.

(Continued from page 180.)

THE seeds best suited for mixed soils must now be referred to, for in some counties and districts they vary much, not only on one farm but also in a single field. We have cultivated a farm for many years whereon no single field possessed an even soil, and this is the case more particularly in those districts where the land is not level, for let the undulations be great or little the soil is sure to vary. It often occurs on chalk subsoils

as well as others, but in laying down mixed soils we must admit that in all our mixtures some of the seeds are not such as are best adapted for mixed or irregular soils. We therefore propose to treat this particular requisite in seeding in connection with the seeding of land intended for parks, which will always be required to be somewhat ornamental. The question of evenness of turf for ornamental purposes, nevertheless, must be connected with the feeding value of the turf after having obtained it as a permanent pasture. Since the revolution which has occurred in seeding down land for permanent pasture we have adopted a plan whereby we have a right, if our endeavours in the selection of seeds has been judicious, to expect nearly all prizes without any blanks. We have omitted to use the Rye Grasses from seeds adapted for permanent turf, and when necessity demands it we must omit also those like Cock's-foot, which are frequently called the coarser Grasses, however valuable they may be considered in the mixtures for various soils for which we have previously formed lists of seeds, to be sown upon certain soils of various shades and quality where the question of ornament was not necessary or advantageous. We shall probably find that chalk, sand, or gravel, as well as limestone soils where lying level, are frequently even in soil on the surface, however they may differ in the subsoil. If, therefore, we have a level and tolerably even soil we may venture to exclude Cock's-foot Grass entirely from our mixture of seeds, and use quantities of each as follows. Mixture of Grass and Clover seeds for park pastures and dry mixed soils generally:—

	lbs.
Cynosurus cristatus (Crested Dog's-tail)	5
Festuca duriuscula (Hard Fescue)	3
Alopecurus pratensis (Meadow Foxtail)	4
Anthoxanthum odoratum (Sweet-scented Vernal Grass) ..	4
Poa pratensis (Smooth-stalked Meadow Grass)	5
Festuca ovina (Sheep's Fescue)	3
Festuca pratensis (Meadow Fescue)	5
Achillea millefolium (Yarrow)	3
Trifolium repens (White Dutch Clover)	5
Trifolium minus (Suckling Clover)	3

Total quantity per acre..... 40 lbs.

It will be noticed that we have not only omitted the Cock's-foot Grass on account of its coarseness or tufty habit of growth, but also the Creeping Fiorin. Although it is a close-growing and productive Grass, it is not well adapted for the mixed soils for reasons previously assigned as objectionable.

A different part of our subject is now reached—viz., the seeding of moist or wet low-lying soils in the valleys or near to rivers or brooks, for whether such land is intended for irrigated meadows or otherwise, in pasture the mixtures we shall recommend for seeding will answer well in either case. In the vales we frequently find considerable tracts of peaty soils, and however infertile they appear and may be in their undrained condition, yet when laid out properly and formed to shed the water on the surface, trenched, and channelled for irrigation, the soil will become fertile in proportion as the seeds sown are suitable, and the depth of accumulated deposits of earthy materials is sufficient to compress the subsoil and render it firm on the surface. Very much in the same way without irrigation the ordinary low-lying land in large districts in the vales is little more than a peat bog. When, however, it has been tile-drained and a large addition of soil added to the surface and seeded with proper Grass, valuable permanent pastures have been secured, yielding abundant crops of Grass.

Peat soil is a deposit or accumulation of vegetable matters, which when full of water in the unimproved condition is completely inert and valueless, but when dry and weighted on the surface with various earthy materials becomes abundantly productive. We know that old pastures are valuable in proportion to the accumulation of humus formed by the annual decay of roots and leaves of the Grasses, which as Darwin assures us, has been converted by the action of worms into manure well adapted for the various Grasses. We have known just the same advantages accrue where mud-land has been reclaimed from the sea, for after the sea has ceased to flow over the surface, and the mud trenched and channelled and covered with a good coating of gravel, and the land has been seeded with proper Grass seeds, we have very productive pastures now where mud only prevailed before and the sea flowed over at every tide.

The following is a list of Grasses best adapted for these soils and circumstances connected with them as before noticed. The seeds which we recommend for forming low-lying meadows and irrigated meadows, as well as land reclaimed from peat bogs and

mudlands from the seashore, and converting them into permanent pasture, are as follows:—

	lbs.
Dactylis glomerata (Rough Cock's-foot)	8
Poa nemoralis (Wood Meadow Grass)	5
Poa trivialis (Rough-stalked Meadow Grass)	4
Festuca pratensis (Meadow Fescue).....	5
Phleum pratense (Meadow Cat's-tail or Timothy Grass)	3
Poa aquatica (Water Meadow Grass)	3
Alopecurus pratensis (Meadow Foxtail)	4
Avena flavescens (Yellow Oat Grass).....	4
Trifolium pratense perenne (Cow Grass or Perennial Clover)	4
Quantity per acre.....	40 lbs.

In each kind of Grass here named, although some have not been included in any former list under other circumstances, yet they will be found exceedingly productive when grown upon the above-named soils and under the special circumstances as previously related. We must also give our reason for omitting some of the Clovers except Cow Grass in the above list. It is, however, well known that for the irrigated meadows they are of little use generally, for the strong and excessive produce of the other Grasses named frequently overwhelms them, and they die out in consequence. This, however, although it may be much the same in low-lying and wet peaty meadows, yet on the higher portions of such meadows, the subsoil being sound and firm, the Water Meadow Grass (Poa aquatica) may be omitted, and the same quantity of white Dutch Clover may be introduced instead; otherwise we consider generally the list recommended contains every suitable Grass for the purpose.

As we have in our prefatory remarks mentioned ensilage, we may here state the Grass produced upon any soil and under any of the attendant circumstances above alluded to will be exceedingly well adapted for being preserved in a properly constructed silo. We must, however, defer any further observations relating to ensilage, as we shall have to make special reference to it in this Journal. Under the projects for irrigation we must also refer to land which is often found on either side of vale meadows, and frequently laid out as what we call catch meadows, the water being led on to the higher portion of the field; and then in the act of irrigation the water, in the endeavour to find its level in the lower portions of the meadow, is cut off by the cross trenches cut for catching the water by channels laid out for the purpose of respreading it, to be caught again in the same way and redistributed throughout the whole field. We have seen this done in numerous instances on the lower valleys near to brooks or rivulets, and at the same time have noticed much land, although under cultivation, similarly situated and well adapted for catch meadows. In such cases we wish to say that the alteration and the admixture of Clover seed instead of one or two of the Grasses which we named above, will apply with full force in seeding for catch meadows.

WORK ON THE HOME FARM.

Horse Labour.—This has been various, for although there has been a few fine drying days, yet it has not continued long enough to allow the work to be done in connection with preparing the land for Peas, Beans, summer Vetches, and early Potatoes, except upon some of the sharp sandy or gravelly soils. When the first settled dry weather occurs the Barley should be drilled, and next the Oats or drege, the latter being required chiefly for consumption of horses and cattle on the farm. The white Oats for sale of the early varieties, such as Canadian and Victoria White, need not be sown before the 14th of March until the 20th, and will then come to the harvest ten days before the Wheat. With reference to the Barley-seeding and drilling we advise that the Barley be drilled at 12 inches apart between the rows, for in our experience we have known the Barley when drilled at that distance has proved a good malting sample, while that put in at the usual distance of 7 inches between the rows has only yielded thin grinding Barley. This circumstance goes far to explain the fact that in samples of drege, in which case three bushels of Oats and one bushel of Barley per acre is usually sown, it is because the Barley has more room to mature when in admixture with Oats. We have not seen an instance of a thin sample of Barley when separated from the Oats; but we know farmers who make a rule, and corn-dealers also, to separate the samples of drege and sell the Barley for malting purposes, and it invariably pays them well for doing. In drilling early Peas for a double purpose—that is, picking in a green state or seeding, for this is done often when convenient to purchasers to buy and pick them in the green state, they should then be drilled at 20 inches at least between the lines. This gives not only room for cultivating with the horse and hand hoes, but affords room for picking green for market. If the land after the main rtion is picked should be clean, the land may then be ploughed a

good depth, burying not only the haulm of the Peas, but the weeds also before they can ripen their seed. In this way the land is well manured by the haulm and weeds and rendered capable of producing a full crop of Turnips sown. Rape early enough to be fed-off by sheep before the seeding for Wheat, or otherwise the Turnips may be ploughed-in, which will insure a full crop and prospect for Wheat. As soon as the spring seedings are done, or simultaneously with them, the land should be preparing for Mangold, Carrot, and Swede seeding.

The land for Potatoes should be planted the first dry weather, and if it was clean or cleaned in the autumn it will now require to be worked down with about two times with the heavy iron drags, and then proceed to plough and plant as fast as, or, in fact, during the ploughing to plant the sets in every third furrow by women by hand labour. We never advise dressing the land for Potatoes with yard or town dung, because whilst the work of carting out and spreading dung is going forward the season is often lost if wet weather occurs, whereas by manuring with guano and bone superphosphate mixed and cast into the furrow with the sets the work is completed and the seed time saved. We advise for use 4 cwt. of the best guano with 3 cwt. of bone superphosphate, mixed with about 10 bushels of damp ashes per acre, which, when strewed in the furrow with the sets, is equal to any amount of the best box dung that can be made, in the result of a Potato crop, and the seed time assured as much as can be done in our fickle climate. As a farm produce we prefer the Magnum Bonum Potatoes, and in friable loamy soil the Wheat is sure to produce well when sown after the Potatoes. We have known this succeed alternately on one field for a period of thirteen years, except that a crop of stubble Turnips in favourable seasons has been taken and fed off by sheep between the Wheat and Potatoes; but when the Turnips are ploughed in it goes a long way to manure for and insure a full growth of Potatoes.

Live Stock.—The Down ewes and their lambs, as well as some of the long-wooled kinds, are now arrived at an interesting period of their lives. The lambs, especially where they are healthy, and when they are intended to be fattened for the butcher as sucking lambs, will now require good shepherding and constant attention; and on some of the grass districts the stock will require—that is, the ewes—but little besides the grass if the season continues as mild as at present while we write, Feb. 25th, except the ewes are intended to be sold fat with the lambs side by side. In this case the ewes may have beanmeal mixed with damp chaff to prevent waste; the lambs, too, may be allowed with benefit a little of the best chaff of Clover or Sainfoin hay, together with cake and cracked peas, in troughs in a fold somewhere in the pasture of a few hurdles square, with lamb gates for them to feed separately from the ewes. In this case, if a few Carrots or Mangold can be cut and the cake and peas both in meal mixed with them, so much the better. The Down flocks on the hill farms as breeding-stock flocks will now be on the Swedish Turnips, in which case the lambs will be fed in advance of the ewes with cut roots mixed with cake and beanmeal, with good Sainfoin hay in the cages or racks, the ewes cutting their own food on the land, and getting a liberal allowance of good Clover or Sainfoin hay in the cages twice a day. The lambs, however, running in advance of the ewes eating Swede greens and Rape where every tenth drill has been grown purposely for them, with the best and choicest hay on the firm in the cages; farther on in the season they may get cut roots with advantage with cake and meal extra.

OUR LETTER BOX.

Rye Grass (IV. L.).—There are several kinds of this much used on hill farms in admixture with white or yellow Clover, especially where intended for sheep-feeding only, and when required to hold over the seeds for feeding the second year the perennial Rye Grass is generally selected for the purpose, and affords abundance of pasturage. The ordinary sorts of Rye Grass, however, attract but little attention now, and not as they did formerly before the Italian Rye Grass came into use.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Baromet- er at 32 1/2 Inches and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1884. February and March.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday 24	29.556	45.0	42.5	N.W.	43.0	48.9	42.4	74.8	88.5	—
Monday 25	29.893	41.1	39.3	W.	42.0	43.1	33.5	77.8	29.3	0.042
Tuesday 26	29.948	40.0	38.9	S.W.	41.2	49.2	33.4	77.4	28.3	—
Wednesday 27	30.040	34.3	34.3	E.	40.4	44.9	29.9	53.7	26.2	—
Thursday 28	29.933	37.0	35.4	S.E.	39.7	41.2	30.6	47.3	26.4	—
Friday 29	29.955	35.7	33.7	E.	39.0	41.8	29.8	57.4	26.2	—
Saturday 1	30.051	33.3	31.7	N.E.	38.4	42.0	27.5	73.3	24.2	—
	29.918	38.1	35.5		40.5	45.2	32.4	66.0	28.4	0.042

REMARKS.

24th.—Fair, but only bright occasionally.
25th.—Cooler, and very changeable, bright sun and short sharp showers.
26th.—White frost early; fine day.
27th.—Foggy early, then fair, but cold.
28th.—Dull and cold, a few flakes of snow.
29th.—Generally fine.
1st.—The coldest day this winter, but bright and sunny.
A considerable fall of temperature has occurred, but not nearly so marked as one as that at the beginning of March, 1883.—G. J. SYMONS.



13	TH	Royal Society at 4.30 P.M.
14	F	
15	S	
16	SUN	3RD IN LENT.
17	M	
18	TU	
19	W	Society of Arts at 8 P.M.

PRUNING ROSES.

NOTWITHSTANDING all that has been written on the danger of early pruning, a great number of persons can with difficulty refrain from applying the knife or secateurs to their rapidly growing plants. They are alarmed lest their Roses should be exhausted by the removal of such masses of green shoots and foliage as late pruning involves in such an early season as we are now experiencing. This is an important matter, and appears deserving of fuller consideration and examination than it has received at the present time.

"D., Deal," has more than once adduced examples of Roses not being weakened by the removal of long shoots studded with fresh growths and expanded foliage, and has shown that plants thus treated have afterwards grown in the most satisfactory manner and developed magnificent blooms in time for exhibiting. A week ago, in the small rosery of Mr. Crowley at Waddon House, Croydon, where the beds are in a very sheltered position, the plants were a thicket of green growths, not a few of the shoots being 4 or 5 inches long, and in some the buds could be felt in the tips. To cut off such a mass of vegetation timid persons would regard as a cruel process, on the ground that it must seriously weaken the plants. It may exhaust the soil, no doubt, to some extent; but, granting that there is sufficient food left in it, are the Roses really weakened at all? The excellent gardener at Waddon has passed the epoch of timidity in the history of Rose-pruning, and now looks on the plants and their future blooming with equanimity. I passed the same epoch ten years ago. The Roses at Waddon were similarly forward when pruned at the end of March last year, and if they were weakened thereby how are we to account for the luxuriant growths that followed, and which now, in turn, await the severe shortening that they will soon have to endure? The result will be the same as last year—free and strong growths and handsome blooms in June, unless some extraordinary late frost should occur to injure the shoots. It is to avoid such possible injury that the pruning of Roses is deterred, and the growth of the bloom-producing shoots retarded. The earlier pruning is done the earlier are the growths that must be relied on for flowering, and consequently the greater is their danger of being destroyed or seriously damaged. The later the pruning is done in reason, say in March, the greater is the liability of the plants to escape the danger indicated; in fact, the longer the buds at the base of the shoots can be kept dormant, yet remain bold and healthy, the safer will the aftergrowths be, and the greater the certainty of free unchecked growth during May and June.

But to the question of weakening. Experience suggests to me that Roses are not weakened by the removal of the growths under notice. It is to be remembered that a plant consists of roots as well as of stems and foliage. Strong branches indicate a vigorous tree, but it can only be made so by the free action of vigorous roots in fertile soil. If the strength of the roots is greater than that of the branches

the force of the sap will be so great that robust growth must follow; while if the balance is on the other side, the roots being the weaker part, the growth of the tree will be restricted. This is very apparent in the growth of Roses. If not pruned at all the growth will soon cease to be strong, and the blooms of necessity will be correspondingly small; but prune severely to bold buds on healthy growth, and the root-power will be concentrated on the few buds retained, and the resulting growths must be correspondingly vigorous, always assuming the soil is fertile.

Admitting the fact, for fact it is, that the greater the preponderance of root power over the strength of the branches the stronger the growth must be, we must also, I think, admit another thing, that the root-action of a Rose is very much greater at the middle of March, or after the branches bristle with healthy growths, than was the case a month or more earlier, or before the buds had started, or, at any rate, before any leaves had commenced unfolding. The growths now produced, and which, it is feared, must weaken the plants, have, more probably, a contrary effect, inasmuch as they have undoubtedly increased the roots, and these working in good soil must inevitably exert such force on the few buds to which the branches are reduced, that the resulting growth must be both quicker and stronger than if the root power were weaker. But does not the removal of such a mass of growths check the roots that have been summoned into activity? It may do so to a slight extent, but experiments conducted with Roses in pots for testing that point have not shown that the roots really suffer; they only rest for a few days, then go on as if refreshed by their temporary inactivity.

Whatever loss there is by deferring the pruning of Roses until after they have commenced growing freely, is the loss of a certain amount of nutriment from the soil; but if this loss is a gain to the Roses, and the saving of the food in the soil a loss to them (by their being cut by frost and unable to appropriate it), then the advantages appear to rest on the side of late pruning, regardless of the extent of the growth of the plants.

On page 186 last week, "A. M. B." wrote in favour of early pruning, and adduced as an instance of its safety successful results notwithstanding the severity of the weather immediately after the plants were pruned. Fortunately the inclement weather followed the pruning so quickly that there was not time for any growth to be made; but supposing the frost had occurred a fortnight or three weeks later, as it is quite as likely to do as not in March, the young growths must have been damaged. Under the circumstances the Roses in question appear to have had a lucky escape.

The chief object of these notes, however, is not to insist on any particular date as the best for pruning Roses—as this can only be rightly determined by individual cultivators who know the local climatic peculiarities which cannot be safely ignored—but as an endeavour to dissipate the fears of those individuals who are anxious to delay the pruning as long as possible, in the hope that the growths on which they must rely for the coveted blooms will escape the frosts of April and early May that are often so disastrous, but who yet are haunted with an uncomfortable feeling that their plants are being exhausted by the growth that is now so prominent, and which every day increases to an apparently dangerous extent. They would be exhausted, no doubt, if the growths were allowed to extend indefinitely—that is, if the Roses were not pruned at all; but pruned in the ordinary manner a strengthening rather than a weakening of the plants occurs. The long shoots that are removed amount very much to a question of removing ninety out of a hundred sheep from a pasture, leaving all the more food for the ten remaining, which have the correspondingly better chance to "eat and get fat," and proverbially farmers like fat sheep, and rosarians fat blooms.

All the food taken out of the soil by the removal of the

growths with which unpruned Roses are now furnished can be restored by one copious application of liquid manure, and this should be given when the pruned plants have fairly started into growth.

When dwarf Roses are grown in beds, and a profusion of flowers of good quality is coveted rather than a limited number of exceptional merit for exhibition, then a number of the strong growths can be pegged down with advantage instead of shortening them in the orthodox manner.—EXPERIENTIA DOCEAT.

SPRING TREATMENT OF ASPARAGUS.

If well attended to in spring this favourite and valuable vegetable will require little attention throughout the season. It is a great advantage for cultivators to raise their own young stock, as Asparagus roots suffer much through being taken up, sent a long distance, and kept out of the soil for a considerable time. Many roots will die from this treatment, and more still will receive a check from which they will not readily recover. When everyone raises his own plants this difficulty has not to be contended with, as the ground may be ready for the plants before they are taken up, and then they need not be out of the soil or exposed to the air for more than a few minutes. In this way they will experience no check from being transplanted, and the advantage of one or two years' growth will be gained. Two or three hundred plants may be raised in a bed 4 feet wide and 10 or 12 yards long. Early in April is a most suitable time to sow the seed, and it may be dealt with like Onions or any other ordinary crop.

Transplanting the young roots into their permanent quarters is an operation of the greatest importance, as on this depends their ultimate success. Soil for Asparagus should always be thoroughly drained. When wet and retentive many roots perish every winter, and the plants are never satisfactory. Light manures, such as horse droppings and gritty road scrapings, suit Asparagus best. The heavier the soil the more of this should be applied, and river or sea sand added in proportions according to the natural condition of the soil will be found to answer admirably. Wood ashes are good, but coal ashes are worse than useless. They may be placed in the bottom as drainage, but amongst the roots they are injurious.

Asparagus roots do not run deep, but live and feed near the surface, and this should be remembered in making the soil ready. Trenching and deep digging are beneficial in helping to improve and drain the surface, but to manure a piece 2 feet deep or more is a mistake. Enrich the surface by all means and make it as good as possible. Fork or dig large quantities of nourishing manure into it immediately before planting, and the results will invariably be satisfactory.

The time of planting must be determined by the condition of the roots. It is not any advantage to plant long before growth begins, and it is injurious to lift and plant after growth has fully started. The best time is when the stems are commencing growth. In some parts of the country this may be about the end of February, and in others not until the end of March. Recently in looking over some young roots we found them just starting into growth, and they were transplanted on the same day.

Asparagus beds are now out of date. They are a waste of ground, and no benefit to the roots or produce. The most profitable way is to plant row after row on a piece of ground and never trouble about beds. The roots should be planted from 2 to 3 feet apart each way, and only 3 or 4 inches below the surface. Roots from one to two years old will be about 1 foot in diameter. The holes for them must not be less than this, and when placed in them none of the roots should curl up. Lay them flat and put two or three handfuls of sand over each, then finish off with the soil which was taken out. Make this quite firm over the roots, and planting is finished.

Older roots which have been planted some years are always benefited by top-dressing in winter and spring. A good handful of salt, guano, or a mixture of both may be shaken over each crown at present with advantage to what is coming in the way of heads. Forking amongst the roots should never be allowed. If the crowns have been mulched throughout the winter this covering may be taken off, placed between the rows and forked in, but to try and work this amongst the roots would end in breaking many of them, and probably injure many of the crowns. Old plantations which have long since seen their best days should not be preserved. They are the reverse of profitable. Cut them to the last this year and then destroy them. Make a new plantation now in fresh ground, and the improvement in quality will soon be noticeable.

Owners of young plantations are often puzzled as to when to begin to cut Asparagus. Must it be two, three, or four years old? Our plan is to cut as soon as the "grass" produced is strong enough to use. Two-year-old plants will sometimes throw up heads which are cut without fear, but poor roots badly managed would show nothing worth having for a long time. Leaving the weak and cutting the strong is a good method. Were they all left the strong would remain so throughout, and the small ones would never come to anything. By cutting and using the finest the small growths are forced to develop, and so a crop is obtained and the plantation is constantly improving.—J. MUIR.

LIME IN FRUIT BORDERS.

THERE is no doubt that lime will be more frequently applied to fruit borders in the future than it has been in the past, Mr. Taylor's useful little book having effectually called attention to its value. Lime appears to have a threefold action upon soil to which it is applied. In its caustic state it liberates from the soil nitrogen, which before its application was not available for plant food. It also is in itself an indispensable plant food, and in its mild state it absorbs nitrogen from the atmosphere. It is of the latter effect which I wish to write. More than twenty-five years ago Professor Nesbit drew attention to the importance of lime in the formation of nitrates. In a lecture on the "Nature and Application of Manures" he said, "Let me further observe that there ought to be calcareous matter in all your soils. There is plenty of it in many districts in the form of chalk, limestone, marl, &c.; and in warm weather there is a process of absorption of ammonia in the air going on naturally in these soils, the ammonia as it is absorbed being converted into nitric acid." Again, in a letter he said, "Whenever animal or vegetable matter—gaseous, liquid, or solid—containing nitrogen comes into contact with mild calcareous or alkaline earths, the mixture being moist and so porous that the air can penetrate, after some time the nitrogen, under certain conditions of temperature, is acted upon by the atmosphere, is oxidised and converted into nitric acid, which at once unites with the calcareous or alkaline bases in the mixture. The temperature most suitable is from 58° to 68° Fahr., and the action ceases at the freezing point."

This is an important matter when we remember that ammonia is the most volatile of all the constituents of manure, and if a dressing of chalk or mild lime will arrest and hold it in a form suitable for plant food by all means let it be employed. Years ago I had proof of the power of spent lime to absorb gases by placing a bucket of whitewash in a shed adjoining a cesspool. When the whitewash was again brought out it was very strongly impregnated with the fumes from the cesspool, and smelt very offensively for some time after. Our fruit houses where the borders are inside seem to present very favourable conditions for this process. The borders are mostly well drained and formed of soil possessing considerable absorptive power; the rubble beneath insures a passage of air, and the temperature is often between the figures named. Add to these the fact that the atmosphere is often charged with ammoniacal gas from liquid placed in the evaporating pans, and it will at once be seen that a dressing of chalk or spent lime must cause a very considerable manurial gain.

Mr. Taylor, in "Vines at Longleat," and the late "Single-handed" in this paper, have given proof that lime can only be kept in soil by frequent applications, and if that is the case in open fields and gardens, fruit borders that have not recently had a dressing must be nearly deficient altogether of this element. We have this year given both Vine and Peach borders a dressing of lime, and all large plants except Azaleas have a share of old plaster mixed with the soil as potting is done. In potting a large specimen of *Adiantum farleyense* which had not been disturbed for three or four years it was noticed that roots were most abundant in the ball where a few pieces of old mortar had been placed at the last potting.—T. A. B.

PRIMULA HARBINGER.

SOME few weeks ago I was favoured with half a dozen strong plants of this lovely Primrose from Mr. Gilbert, with the request to pot and place them in a cold frame with a view to secure a fine display of bloom in March. The plants being strong, clumps were placed in 6-inch pots, the smallest size they could be got into without interfering with the roots. They were placed on a shelf in a Peach house in a light airy position, and in company with a number of *Primula sinensis* both single and double of the choicest strains as regards the singles, including Veitch's Superb Fringed, red and white; Veitch's Scarlet Gem, Williams' Scarlet, Chiswick Red, Waltham White, &c., and in doubles Marchioness of Exeter, White Lady,

Princess Beatrice, Earl of Beaconsfield, Alba plena, &c., and now (the beginning of March) Harbinger is the finest of them all.

I do not know which to admire most—the striking likeness of the plant to the common Primrose, or the refinement of the flowers. Everyone who sees it asks, What is this? I am quite charmed with it as a decorative plant, and being hardy no protection is needed, yet is all the better for a slight protection at the flowering season. What also is lovelier than well-flowered plants of *P. obconica* with its lilac flowers in profusion all through the winter months? Or the pure white of *P. viscosa nivalis* with its immense trusses and fragrance, the yellow and fragrant *P. verticillata*, the large heads of indigo-purple flowers of *P. capitata*, the bluish-lilac flowers in their numerous umbels of *P. denticulata*, or the rich violet-blue with the yellow-eyed flowers in globular umbels of *P. denticulata capitata*, to say nothing of *P. Sieboldi* vars., and the double varieties of *P. acaulis*, and Alpine Auriculas, all of which are beautiful plants for pots, only needing the protection of a frame to have them in flower at an early season.

Harbinger has the foliage and habit of our common Primrose, and is apparently of very free vigorous growth. The plants in 6-inch pots are over 15 inches in diameter. The flowers are borne in loose heads or umbels, having usually ten flowers in an umbel. The plants have thirty flower heads each, and one plant in a 6-inch pot has 360 flowers. The plant is very compact, the flower heads forming a half ball. The flowers appear as a refined Primrose, are perfectly flat, quite circular, without indent, serrature, or fringe on the edge, being quite smooth, of good substance, large (over $1\frac{1}{2}$ inch across), and the colour is white with a faint tinge of primrose. It is a really good variety, and must become popular in every garden.—G. ABBEY.

MANURES AND THEIR ACTION.

HAVING shown on page 149 of the Journal that it is quite as essential for plants to have a constant supply of suitable food for their existence as it is for animals to be fed, and that they obtain that supply chiefly from the soil in which they grow, I will now briefly note how plant food can be added to the soil by the application of various manures, and thus meet the second part of "Querist's" question when he asks what the various manures are composed of, and in what way they are beneficial to plant life. First, it will be seen that if the soil is constantly being deprived of the plant food it contains, and nothing be given to it in return, it is quite possible for the soil to be rendered unproductive and the land exhausted. This evil can be overcome by adding to the land such food as the plant requires in the form of manure. Manures can be classed as general and special, the former being a manure which contains all the ingredients necessary for plant food, the latter one which is applied for a special ingredient contained therein.

There is only one general manure—viz., farmyard manure, which if really good is a perfect food for a plant. The application of farmyard manure is really returning to the land a portion of that which has been previously borrowed from it. The quality may, however, differ under various circumstances, as, for instance, the age of the animal from which it is obtained or according to the management during and after the accumulation. Young animals while growing require a greater amount of nitrogen for the formation of muscle, &c., and phosphorus for the formation of bone; therefore the manure of an old animal has a larger amount of both nitrogen and phosphorus than that of a young one. Then, again, if during its accumulation too much water is allowed to fall on to it the ammonia is washed away, or if fermentation is allowed to take place too rapidly the ammonia escapes. The successful fermentation of the manure heap depends chiefly upon the temperature at which it is allowed to proceed. If the ferment does not exceed 80° no ammonia is escaping. To have good farmyard manure we must have good food, good litter, prevent waste of urine, overheating, and waste by storm water.

Some crops, however, require a greater supply of one kind of food than they do of another, and therefore exhaust the land of that ingredient, and it is found necessary to apply a manure which is rich in that compound or element. A special manure is then used, such as lime, bones, or guano. Lime is one of the ingredients which forms part of the structure of the plant. It also improves the physical properties of land, making clay soils easier to work and less retentive of water. There are three kinds of lime—carbonate of lime (limestone), caustic lime (calcined lime), and hydrate of lime (slaked lime). As a general rule, it may be taken that caustic lime should not be applied to land if there is a scarcity of vegetable matter in the soil, because it will exhaust the organic matter present; but it should be applied in the form of chalk or marl, which contain a large amount of lime. If the soil be heavy and tenacious, then the lime should be applied in the caustic form.

If the phosphorus becomes exhausted in a soil ground bones are applied, as their principal ingredient is phosphate of lime. Bones contain bone cartilage (or organic matter, containing nitrogen, which will produce fermentation), 33.3 per cent; tricalcic phosphate, 55.45; carbonate of lime, 3.85; oxide of lime, 2.90; phosphate of magnesia, 2.05; soda and salt, 2.45.

If ammonia be the required ingredient Peruvian guano takes the principal position. Guano also contains a quantity of phosphorus. This manure is the excrement of sea fowls found on the islands off the coast of Peru. The richest deposits were used first, and consequently much of the present supply only contains 8 or 10 per cent. of ammonia, while in 1855 the average was about 17 per cent.—UNDER GARDENER.

NOTES ON ORCHIDS.

DENDROBIUM LUTEOLUM.—This is a beautiful and useful Orchid, with slender pseudo-bulbs 2 feet or more in length, from which are produced its cream-coloured flowers in twos and threes along the stem just as the plant is completing growth. The throat is blotched with a deeper shade of yellow, which is delicately pencilled with rosy-pink. The lip is large and well thrown back, while the sepals and petals stand forward and give to the flower a distinct appearance. The blooms last for a month, and are freely produced during the autumn and winter. They are very suitable for buttonholes and bouquets. After flowering a good season of rest is necessary to successful cultivation. Most winter and spring-flowering Dendrobies require well ripening and a good season of rest to secure a supply of bloom; but *D. luteolum* makes its growth, flowers, and then requires its rest, which is as essential to success as it is in the case of those kinds that need to be well ripened and rested to flower well.

Plants just past flowering will still have fresh foliage, which will soon ripen as the plants are kept drier at the roots. It is deciduous, and when well ripened should be placed in a cool house for a time, where it more thoroughly rests than if kept in heat. While growing it needs abundance of heat and moisture, and should be grown in a basket suspended from the roof. Like all Dendrobies, it requires shade from the burning rays of the sun while making its growth, but should have a light position, as upon this depends whether the plants are well or poorly bloomed. The time of flowering can be regulated so as to maintain a lengthened supply of bloom, and this accomplished by starting the plants into growth at intervals of about a month. Very little rooting material is needed, and it will do well in peat fibre and lumps of charcoal. It is very liable to attacks of red spider and thrips in a dry or unsuitable atmosphere. Strong plants increase freely by forming growths along the ripened pseudo-bulbs of the previous year. Under artificial light the flowers appear pure white.

DENDROBIUM WARDIANUM.—Those who have only seen this variety with puny pseudo-bulbs and a few small flowers can form no true idea of the beauty of a number of well-grown and profusely flowered plants. Under good treatment it makes pseudo-bulbs 3 feet in length, and these, if well-ripened, will produce two and three flowers from every joint for a length of 18 inches or 2 feet. A number of plants with from three to six flowering pseudo-bulbs upon them, give, when in flower, to any house in which they are arranged, a highly effective appearance, whether suspended in baskets from the roof or grown in pots. They are best in baskets, as their growths are pendant or partially so, and if allowed to hang from the baskets naturally they are more pleasing and ornamental than if stiffly staked. No Dendrobic is of easier culture. If this species is grown in baskets the plants will do well in either all moss or peat fibre, with portions of crocks or charcoal intermixed. I use both moss and fibre, the latter inside and the former on the surface, because from this position it is readily removed annually as the roots commence action. From the time the roots are growing freely to the time the pseudo-bulbs cease extending they should always have a sufficient supply of water. Stimulants applied in the form of liquid manure will be found beneficial if given occasionally in a weak state. No better position can be found for this Orchid than the stove, and the temperature and conditions of a vinery at work will also suit them admirably.

CYPRIPEDIUM VILLOSUM.—One of the best species that can be grown for the conservatory. The blooms will last in such positions longer than those of *C. insigne*. If these two and *C. venustum* are grown they will yield plants for the conservatory for at least a period of eight months. *C. villosum* will flower in this position for three months, and the blooms possess more substance and are brighter in colour when developed in a light temperature of 45° than when they are allowed to open in heat. It will do well in a cool house, but its progress under cool treatment is slow. Here the winter temperature ranges about 60° at night, and the plants are now ready for the conservatory, where they will remain until the middle of May and then be returned to the heated structure. The plant

are not injured by their three months' cool treatment; on the contrary, they are benefited and enjoy the season of rest. They are never allowed to suffer from an insufficient supply of water. To show the progress made of a plant under this treatment, it was six years ago a small piece in a thumb pot, and is now in a 9-inch pot carrying eight or nine flowers. The growths are strong, and are this year expected to make double breaks.—W. B.

PHALÆNOPSIS SCHILLERIANA.—I send you the terminal inflorescence of a large panicle of *Phalænopsis Schilleriana*, which has borne fifty flowers. It has been in full bloom since February 11th, but having been a week in the drawing-room it has not lasted quite so long as it might have done. The plant has five leaves, varying from 12 to 17 inches in length, and broad and thick in proportion. Taking it all in all it was the finest spike of *P. Schilleriana* I have ever seen.—J. U. S.

[The portion of the panicle received is sufficient to indicate that the inflorescence has been an extremely handsome one, for we rarely see so many flowers on one plant, but in this case it is evidently a strong one. Unfortunately *Phalænopsis* are very apt to suffer greatly from excessive flowering. We recently saw a collection which has been removed from a smoky town garden to an open situation in the suburbs, and though the quality and number of the flowers had much improved, the plants were not so strong, and did not make such vigorous foliage as they had done in their apparently less favourable quarters. This was apparently due to the fact that the fogs and smoke caused most of the flowers to fall before they had fully expanded when the plants were in the town garden, whereas in their present more favourable situation the flowers were retained and developed. Beautiful indeed as the flowers appear on the plants, it is a decided advantage if they are cut after they have been open a few days, and in the case of weakly plants it is advisable to remove the spikes as they show.]

CUTTING DOWN DENDROBIUMS.—I enclose two growths of *Dendrobium nobile* taken from a plant in a small pot; one growth has thirty-one blooms expanded, and the other twenty-eight. On the same plant are several more pseudo-bulbs with blooms varying from twenty to thirty on each, in all about 300 blooms. As all our flowers have to be cut and sent 155 miles by rail I find it best to cut off the growths close to the pot, when the young growths start from the bottom. In this way I get from a dozen and a half to two dozen growths on each plant, varying from 18 inches to 3 feet in length, bloomed like those enclosed, which make a grand display and are useful for cutting.—B

[Finer examples of this grand old *Dendrobium* we have never seen. One of the pseudo-bulbs has twenty-eight flowers in a space of 8 inches, three or four being produced from a node. The flowers, too, are of good size and excellent colour. We shall be glad to receive notes or specimens of good Orchids from any of our correspondents.]

PRESENT AND PAST METHODS OF CULTURE.—Orchid growers will perceive with pleasure that space is now set apart in the pages of the *Journal* for notes and gleanings about Orchids. To record successes and failures and discuss methods of cultivation assist very largely towards the discovery of the best and easiest method, and in that department of horticulture which is devoted to the great Orchid family this is especially the case. Many of us remember what Orchid-growing meant before the nature and habits of the plants were properly understood; most of us are aware now that by far the larger proportion of Orchids are among the least difficult of plants to manage. Instead of specially constructed houses, specially trained and specially paid men being necessary to success in Orchid management, we have learnt that success is achievable without wandering far beyond the lines of ordinary gardening routine. *Dendrobiums* as strong and healthy as Bamboos are now grown in vineries; *Celogynes*, *Cypripediums*, and a host of other kinds are cultivated in stoves with the mixed stove plants. *Odontoglossums* are grown by thousands in frames and pits, where they are treated to the hose or rose-pot in a way that would horrify an Orchid grower of the old school. These are a few instances of what is done in the management of Orchids, but they are sufficient to show what perseverance and experiment have done towards simplifying the cultivation of Orchids. Much has been done, but much still remains to be learnt before we can feel satisfied with all our Orchid pets, and so it is that we are always on the look-out for information which shall help us in the management of those plants whose requirements are at present but imperfectly under-

stood. For my own part I hope to glean much from our Orchid column, and I also hope that by recording whatever is noteworthy I shall be able to assist others over little difficulties which are ever arising when we are dealing with new or delicate plants.

WATERING ORCHIDS.—Speaking of the use of the hose for watering *Odontoglossums* recalls the practice of Messrs. Sander and Co. in their treatment of *Cattleyas*. In the new houses at St. Albans may be seen thousands of these plants arranged in such a way as to suggest a long street, and in the summer these plants are watered, not by means of a small pot through which water is carefully dribbled, but a hose pipe is used, and a thorough sousing overhead, a saturating one might say, is given almost daily. Of course in the winter less water is given, though the plants are never allowed to become as parched as one sees *Cattleyas* treated now and then. That Messrs. Sander & Co.'s plants thrive upon this daily ablution may be seen by visiting their houses. I took the hint, and since then have watered and syringed our *Cattleyas* in a way that would have made me wince once, and I am so satisfied with the result that I intend for the future to water all our *Cattleyas* as freely as *Crotons*. Given a healthy plant, proper drainage and good soil, or rather peat fibre, there is no reason why *Cattleyas* should not receive abundance of water when growing and be kept moist all through the winter. If the ventilating and shading are right—and almost everything depends upon these—there can be no fear of immature growth or damping of flower sheaths.

LIQUID MANURE FOR ORCHIDS.—Last year our plants of *Odontoglossum vexillarium* and *O. Phalænopsis* were watered very heavily, and they are now better than we could grow them when water was sparingly supplied. I know a gardener who grows these two *Odontoglossums* and *O. Roezlii* in a green house along with *Bouvardias* and similar plants. They are potted in pure sphagnum and placed on a shelf about 2 feet from the glass, where they are shaded from bright sunshine, and where they have plenty of fresh air without experiencing any cold draughts. All through the summer the watering pot is used freely, and once a fortnight a weak solution of cow manure is applied to the roots. To prevent the great enemy of these plants—thrips—from gaining a footing, my friend dips his *Odontoglossums* in soapsuds as often as he supplies them with the liquid manure. Now these plants are like sedges, healthy, dark green, spotless, and as ripe and plump as acorns, and when they flower they are pictures of health and beauty. That idea of using soapsuds and cow manure was culled from a paper note. At an Orchid sale recently I saw a plant of *O. Phalænopsis* in an 8-inch pot with ninety pseudo-bulbs, and leaves without a spot. I failed to discover the grower of this plant, but I wondered whether soapsuds and cow manure had anything to do with it. Orchids are most of them capable of adapting themselves to conditions slightly altered from what they thrive naturally under, and they are also capable of being successfully managed under artificial treatment varying somewhat in its details, so that when once we have the key to the secret of their health we may be able to produce equally good results from slightly different methods. I say this because I know others who grow these plants well without having recourse to the specifics of my gardening friend.—W. W.

FLOWER SHOW SCHEDULES.

In the *Journal* of February 21st, page 144, you publish under the above heading some remarks on the "suicidal course" and "selfishness" of the Eastbourne Gardeners' and Cottagers' Society in not throwing their society open. I believe I can put the matter in a very different light, and show that the "selfishness" is on the side of the writer, Mr. J. Gore. This Society was formed about four years ago "for the general diffusion of knowledge amongst its members relating to the cultivation of fruits, flowers, vegetables, &c." Monthly meetings are held, at which papers on horticultural subjects are read and discussed. Mr. Gore, although aware of the existence of the Society, had no wish to become a member until he saw the schedule of the summer Show last year, and as the members were satisfied that he had no idea of benefiting the Society by attending the monthly meetings the resolution to which he refers was passed.

His remarks as to the entrance fees and members' classes are, to say the least, misleading. There was one entrance fee of 5s. in Class 1, where £18 was offered. Altogether £140 was offered in prizes. Of this amount £95 was open to Mr. Gore; £19 only was reserved for professional members. The remainder was for amateurs and cottagers, and I fancy even your correspondent would hardly expect to compete with them. The amount reserved for members is surely no more than they are entitled to, as they give a great amount of time and trouble to further the objects for which the Society was formed, and also, owing to the climate and soil here, they cannot compete equally with gardeners further inland.

I forward by this post schedule of Show and copy of rules. You will see by the first rule the objects of the Society, and that shows are only a

secondary consideration I think is clear by Rule 22, the last but one. I must apologise for so long a letter, but as no one knows better than I do the good this Society has done and is doing I cannot allow such misleading remarks to remain uncontradicted.—HENRY WOOD, *President of the Eastbourne Gardeners' and Cottagers' Society*.

[In only one of the twenty-three rules is there any allusion to exhibitions, and this only states they "may be held in Eastbourne if approved of at a general meeting, at which the production of the members shall be shown." Rule 16 shows that an excellent object of this Society is to assist destitute members, and to aid those unemployed to procure employment.]

VIOLET COMTE BRAZZA.

WHEN Mr. Allan, gardener to Lord Suffield, Gunton Park, Norwich, exhibited before the Floral Committee of the Royal Horticultural Society,

panying engraving) gives the following description of the plant, which well expresses its chief characters. "Since the plant came into my hands from the famous Italian garden of Count Brazza de Savorgnin, I have had ample opportunity of testing its merits, and have put it through a most exhaustive critical and complete trial with splendid results. In character it partakes of the style of the favourite winter-flowering variety Neapolitan; this fact alone shows its great superiority over other double white forms, which are generally more or less shy and late. The flowers are thoroughly double and very large, attaining under good cultivation to the extraordinary diameter of $1\frac{1}{2}$ inch, and are often composed of as many as forty petals. They are borne on long vigorous stems, rendering it specially fitted for cutting, and the colour is pure white, while the scent is most powerful and delicious."



Fig. 44.—VIOLET COMTE BRAZZA.

ovember 13th, 1883, a number of flowers of this handsome Violet in comparison with the old Neapolitan and Marie Louise, they were much admired, and a first-class certificate was readily granted for the variety. Since then flowers have been shown on several occasions, and the valuable qualities which distinguished the first have been so well maintained that it has obtained a firm hold on popular favour. Violets are liked by everyone, and it is therefore not surprising that a variety with large well-formed double pure white fragrant flowers should be so heartily welcomed.

Mr. T. S. Ware, Tottenham (to whom we are indebted for the accom-

Samples of the Tottenham flowers were submitted to us a short time since, and were in size and purity some of the finest we have seen.

FRUIT TREE CANKER AND ITS CAUSES.

I READILY endorse what your correspondent "R. P. B." says on this subject (page 168) as to the soil affecting Apple trees in such a way as to produce canker. I feel sure he is correct in stating that to be the chief cause, and no doubt he is also right in advocating keeping the soil firm for fruit culture. If it does not tend to check canker, it will prove of much benefit generally to the trees and also to the crop they produce. The less the roots are interfered with after the trees become established

the better, unless it be found necessary to root-prune them, and this will not require to be done so frequently where the soil is kept firm around the trees as where it is regularly forked. We find here (Hertfordshire) shallow planting the best means of preventing canker. This, combined with judicious root-pruning at the time of planting, will ward off canker for a great number of years. All roots tending downwards should be pruned very much harder than lateral ones. Each tree should be elevated in planting in such a manner that when the operation is completed they should stand on mounds a few inches above the level of the ground around them, and all the lateral roots should be spread out carefully as near the surface of the soil as possible. If the soil be of ordinary good quality no manure need be put in with it, as it is far better to apply it as a heavy top-dressing, which will have the effect of encouraging the roots to keep near the surface. After careful labelling with permanent labels, such as the Acme fruit tree label, and firmly staking each tree, keeping down weeds by hoeing and hand-weeding, nothing more will be found necessary until the time arrives for another top-dressing, which should be applied in February, or March at the latest.

The soil of different localities appears to affect some varieties in a marked manner. For instance, we have Potts' Seedling Apple worked here for a number of years, and all the trees are in the best of health, whilst some trees of this variety we recently procured from Lancashire are all more or less affected. Dumelow's Seedling, or Wellington, succeeds here wonderfully well, and is very free from this dread disease, whilst I have noticed in some parts of Hertfordshire this same variety suffers most severely. Lord Suffield generally cankers as soon as the roots get down to the subsoil; on the other hand, Lord Grosvenor remains perfectly healthy. This latter variety bids fair to be extensively planted in preference to the former. Ecklinville Seedling is one of the most healthy and vigorous-growing varieties of Apple we have, rarely if ever showing any sign of canker, and a most prodigious and constant cropping variety. Cellini is a great cropper, but as soon as it reaches the subsoil it cankers badly. Herefordshire Beefing is a vigorous grower, and is undoubtedly very free from canker; it will keep in good condition till June, and is a large and constant bearer.

Would it not prove of great advantage to a large number of your readers, now that Apple tree planting is so much on the increase all over the country, if you could obtain from reliable sources lists for publication of varieties best suited to cultivate in various districts, and such as are least liable to canker? Such information would be much appreciated by a number of readers of your valuable Journal.—H. R. ILLMAN, *Hereford*.

WHEN reading the notes on this subject (page 168) by "A Yorkshire Gardener" and others (page 168) I was reminded of a few notes in an old diary of observations taken by me at different times and places, which I submit for your readers' judgment should you think them of any service. When graduating in a certain garden in Lanarkshire I noticed that during my time no ground was dug near fruit trees. An alley, as we call it, was left 3 feet from the walls on which trained Peach, Pear, and Plum trees were. The garden soil was decidedly heavy, with a wet subsoil. Also near Derby the same rule was observed with regard to fruit trees, and canker in both cases was unknown. Here (Cavan) the case is altered, as we have not an Apple or Plum that is not affected with this disease. It cannot be from imperfect drainage, as the garden soil is like a river's bed with pebbles resting on the rock (iron). Trees planted twelve years ago could be easily pulled up by the roots. I may say I have never seen a case of canker in old orchards that are laid out in grass. Has any other observer seen it there?—RITCHIE.

HARDY PLANTS IN FLOWER.

SISYRINCHIUM GRANDIFLORUM.—A charming spring-flowering plant, so delicate in appearance, yet so capable of holding its own against driving rains and winds. One thing is certain, it dislikes a dry position, and has an equal aversion to light soils such as peat. The best plants I possess are in a damp position with rather heavy loamy soil, and I recently saw some in pots of very stiff soil, the drainage of which was nearly stopped, but the plants were extremely healthy and flowering freely; indeed it is one of the few hardy plants which do really well in pots, and that with limited room. Perhaps the prettiest sight I have seen this season was a clump of this plant mixed with its white-flowered variety. I planted them last year. The pieces of album were rather weak, but they flowered fairly well, and the charming contrast of the intermingled flowers was most pleasing. I find the white-flowered variety rather more delicate, and I think rather later in flowering, although the latter may be due to my plants being weak; but certainly they were not quite so forward as those of the typical form, yet were in sufficient time to associate with some of the latest purple flowers. All lovers of hardy flowers should secure both forms. A few good pots in a greenhouse are very beautiful, as the flowers last well under glass and are quite distinct from most plants employed for that purpose.

SNOWDROPS.—Since writing my last notes I have had the very great pleasure of examining some rare and beautiful forms of *Galanthus nivalis*, the most distinct of which were *G. poculiformis* and *G. lutescens*. The former is very peculiar. The three inner perianth divisions are nearly or quite as long as the other ones, and not arranged in a small cup like the usual form, but are sub-spreading

and quite white throughout, entirely devoid of the green blotches and inside lining, also characteristics of the species, so we may consider it one of the most distinct of all the Snowdrops. The variety *lutescens* is really yellowish, as its name implies. The green blotches of the type are replaced by yellow ones, and the base of the inner divisions is yellow-tinted; hence we have a decided if not a very desirable distinction from the rest. The variation in *G. Elwesii* is very great. I have just had a bulb in flower with the outer divisions very narrow—not more than two lines broad, and sharply reflexed like those of *Narcissus triandrus*. The inner divisions were of the usual character. The flower presented a very queer appearance, but it is most interesting to note these differences, and in this case I shall take special care of the bulb.

LEUCOIUM VERNUM.—With regard to my remarks on this charming bulb on page 148, I am informed there was a variety called *carpathicum* which is thought to be lost to cultivation, and that the main distinguishing characteristics of this variety were a two-flowered peduncle, and yellow spots upon the flowers instead of green. Now, in my notes I stated that the peduncles were from one to three-flowered, and these notes were made from a large bed where perhaps 2000 bulbs were in flower. On looking over the same bed again I find the bulk of them are two-flowered, and only about three scapes with three flowers upon them, from which I shall if possible save seed. In my opinion there is no basis at all for the variety *carpathicum*, because I notice some of the bulbs producing two-flowered peduncles have side bulbs which only produce a solitary flower. Referring again to the colour of the spots as a distinctive mark, is again most misleading, as I notice every gradation from bright yellow to deep green and *vice versa*. I have seen it described as difficult to please—the opposite to this is my experience; it certainly enjoys a rich light sandy soil, and does not like being disturbed, although if the bulbs are fully developed the fact of removing them from one place to another will not prevent their flowering, for in November last I removed over 1000 of such bulbs, and they have flowered grandly, and are now making excellent growth. In the autumn of 1882 I received a large number of bulbs from the continent, which were so very small that up to this time they have not produced a flower, neither do I believe they would had they been kept undisturbed. *L. pulchellum* is just opening its flowers, but I do not think them so pretty as those of *L. vernum*; they are not so large, but more numerous, pure white with green spots; a clump of it is very desirable so early in the year.

GLORY OF THE SNOW (*CHIONODOXA LUCILLÆ*).—This is certainly one of the most charming spring-flowering bulbs. There is a white-flowered variety, but I do not think it an acquisition, nor perhaps so showy as the old *Triteleia uniflora*, now flowering freely. Many have expressed themselves disappointed at the "Glory of the Snow," but I think this is mainly due to the fact of its infancy in our gardens. Wait until we have well-established clumps and then everybody will be pleased. Those bulbs which have been in the ground three years are very much stronger, they produce much finer spikes of flowers, and the individual flowers are larger. The bulk of the purchasers have been supplied with small imported bulbs up to the present, which are only capable of producing one or two flowers, and those bulbs may be freely mixed with *Scilla bifolia* and *Galanthus Elwesii*. In due time we shall have strong home-grown bulbs, and the results I feel sure will be more satisfactory. It seems quite hardy, but it likes a well-drained position in rich but light soil. I have several bulbs pricked in crannies of the rockery, and these have some very fine spikes, and they look extremely pretty nestled against the stones; indeed, it is a very fitting home for them, as they are quite capable of taking care of themselves if left undisturbed, and they bloom at a time when most occupants of the rockery are but just awaking from the sleep of winter; and by the time that such are rampant in growth the *Chionodoxa* has passed to rest.

DONDIA EPIPACTIS.—This is not a very attractive plant, but I am always delighted to see its curious little yellow heads peeped out just above the ground. It likes a damp position, hence the best tuft I have is at the foot of a damp rockery, where it is evidently very happy, and is now crowded with flower heads.

LEONTICE ALTAICA.—A very rare plant, closely allied to the *Corydalis*, and it might easily be mistaken for one. I am not sure that it is perfectly hardy in all parts of the country. I do not risk my plant outside, but give it the protection of a handlight, so that it is kept dry during the autumn and winter; and it is planted in a well-drained position in light sandy soil. It produces freely divided glaucous leaves, and racemes of bright yellow flowers. It is a native of Siberia, and was introduced as early as 1818, but was evidently nearly lost to cultivation until Dr. E. Regel of the Imperial Botanic Gardens, St. Petersburg, replenished the small stock in this country a few years since. It is flowering rather early this season, owing undoubtedly to the extreme mildness thereof, and the fact of its being covered with glass. It is not the plant for everybody to seek, but it

is one of those plants which heighten the enjoyment of the cultivator whose love for plants stimulates him far beyond the desire to insure brilliant colour or striking effect.

DOUBLE PRIMROSES.—These please everybody. Well, perhaps I am going beyond the mark, because I heard a fastidious individual the other day remark, when his attention was drawn to some of these flowers, "Oh! I don't care for double flowers." But they like double Primroses in Ireland. When there last year I was greatly struck at the number of them grown, and how luxuriantly they flourished. Pompadour is there in abundance, blooming most profusely. This has the richest of all colours in Primroses; but there are two varieties, at least I think so, one is rich crimson throughout and rather more double than the other, which is yellowish at the base of the floral leaves. I prefer the former, as I think it flowers more freely than the latter. Then there are double white, sulphur, yellow, rose, red, and purple, all of which are extremely free-flowering and very handsome; and if covered with glass, and thus kept clean, the flowers are very useful in a cut state for many purposes. From Messrs. Fröbel and Co., Zurich, has come a hose-in-hose Polyanthus of a rich scarlet colour under the name of *Primula veris coccinea plena*. It is very free-flowering and showy; indeed, more so than any other similar form of Polyanthus I have seen. Mr. Cannell speaks highly of some of his varieties, but those I have never seen; but most likely they are all very pretty. There is one double Primrose I have under the name of "Scotch." Whether there is such a variety I do not know; the flowers are of a rich rose-purple colour, yellowish at the base, and very freely produced. I have heard of one in Ireland under the name of "Sapphire," which is said to be very scarce, of a deep bluish purple colour. I wonder whether any of your Hibernian readers could give us any information respecting it.—T.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Maxwell T. Masters, Esq., M.D., F.R.S., in the chair, the following candidates were unanimously elected Fellows—viz., Frederick Henley Newens, R. P. Percival, F. Sander, George Cappelen Sawyer, Charles Sharpe, Sir Henry Thring, K.C.B., Mrs. Arthur Tower, Mrs. Tremlett. The President, Lord Aberdare, has nominated the following gentlemen Vice-Presidents for the ensuing year—viz., Sir Trevor Lawrence, Bart., M.P., J. H. Mangles, Robert Hogg, LL.D., F.L.S., Sir P. Cunliffe Owen, K.C.M.G., C.B., C.I.E.

— WE regret to learn that DR. GEORGE ENGELMANN, who has gained so great a fame as a botanist and an authority on Conifers, died, at the age of seventy-five years, on February 4th, at St. Louis, in Missouri. He was a native of Frankfort-on-the-Maine, but has spent most of his life in the United States, where he has carefully studied the Conifers, Cactæ, and Agaves. His magnificent book upon the Cactaceæ of the Boundary Survey Expedition was one of his principal works, several treatises and essays having also been published.

— MR. WRIGHT begs to acknowledge the receipt of £3 10s. 6d. that was generously contributed for the benefit of MRS. HONEYMAN by the members attending the meeting of the Manchester Horticultural Mutual Improvement Society, held on the 6th inst., and transmitted by Mr. W. Swan of Oakley, Fallowfield. "A Gardener's Wife" has with equal generosity sent 10s. and a kindly sympathetic letter. A correspondent has also sent 5s., which he "neither wants acknowledging publicly nor in any other way." He will perceive that it has been received, and this, with the other contributions, are thankfully accepted.

— MR. EDWARD MAWLEY's annual contribution to meteorological literature is now issued (Stanford), and "THE WEATHER OF 1883" contains a series of elaborate observations on the variations in temperature, rainfall, barometric pressure, wind, duration of sunshine, &c., which are recorded in the same full and accurate manner which has distinguished previous issues of the work. A table is also given comparing 1883 with 1882, from which it appears that the chief difference is in the rainfall of the past year exceeding that of the preceding one by over 2 inches.

— "MR. PERKINS, the Secretary of Lord's Cricket Ground, says

he has a plague of the grub of the 'DADDY LONGLEGS,' and that they are ruining the grass. Can anything be done? I hear Regent's Park grass is bare through them." Thus writes a correspondent, and we are sorry to hear of such a violent attack of this destructive and almost ineradicable pest. We would suggest that Mr. Perkins make a few experiments with petroleum, by mixing from 1 to 3 or 4 ozs. of oil with water, and trying the effects of different strengths on separate plots. It is possible that he may ascertain the right quantity to use, so as to check, if not destroy, the larvæ, and at the same time benefit the grass. It must be remembered that the oil and water can only be incorporated by constant and violent agitation when the solution is being used; if not agitated the petroleum floats on the water. Solutions of hellebore might also be tried, mixing from 2 to 4 ozs. of powder into a paste, then adding a little boiling water, which can be cooled and increased to a gallon with cold water.

— **GARDENING APPOINTMENT.**—Mr. Richard Parker, foreman under Mr. McIndoe, at Hutton Hall, Guisborough, has been appointed to succeed Mr. Owen Thomas as gardener to John Corbett, Esq., M.P., Impney, Droitwich.

— "IPSWICH" writes in reply to "A. M.," page 166, relative to WASHING VINE RODS, that he does precisely what he advised—namely, uses a spoke brush as quickly and vigorously as a groom uses it in washing a carriage. He does not pretend to keep the water at any given temperature, as if it is applied at any heat between 120° and 160° to Vine rods when they are quite at rest, he does no injury to them whatever; while if it does not destroy all the insects and eggs in the bark, it is the fault of the workman. Provided the work is quickly done, and boiling water can be had by walking fifty or even a hundred yards for it, there is no difficulty in maintaining the temperature indicated of that which is applied to the Vines.

— As will be seen by an advertisement in another column, arrangements have been made by the Council of the Royal Horticultural Society for holding a CONFERENCE ON THE NARCISSUS on April 1st, at which Mr. F. W. Burbidge will read a paper, which is expected to lead to an interesting and instructive discussion on the large and popular genus to which it pertains.

— MESSRS. JAMES CARTER & Co. have sent us a pamphlet on laying down and improving lawns, lawn tennis, and cricket grounds, the perusal of which may be useful to persons interested in the subject.

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., the following paper will be read:—"Brief Notes on the History of Thermometers," by Robert H. Scott, M.A., F.R.S., President. After the reading of this paper the meeting will be adjourned in order to afford the Fellows and their friends an opportunity of inspecting the exhibition of thermometers and of such new instruments as have been invented and first constructed since the last Exhibition.

— MR. J. SIMPSON, Wortley, writes respecting PEACH TREE EXTENSION:—"I am always pleased to answer any *bonâ fide* questions that may be asked me on this subject, and I have answered many; but if 'A Working Gardener' (page 189) will again refer to the source where he found I 'claimed credit as being' not 'the author' of the extension system, but the first to 'practise and recommend it on definite principles,' he will find all the information he now seeks minutely given and illustrated; also that 'extension' is not what he would make it appear to be, and that it does not refer to either the size or the number of trees so much as to the raising and fruiting of them soon and successfully."

— THE LINCOLN CHRYSANTHEMUM SOCIETY announce that their second Exhibition will be held on Tuesday and Wednesday, November 18th and 19th of the present year, in the Corn Exchange, Lincoln. The first Show was successful, and the Society has secured a balance of £29 19s. 9d. in its favour—very encouraging results. In the schedule now being issued thirty-one classes are enumerated for specimen plants and cut blooms.

— "C. W.," writing in regard to CONTROVERSY, observes:—"I trust the readers of the Journal will duly appreciate the eminent abilities and fully recognise the high position to which "Casual" (page 83) has attained in respect to the subtle rules and laws of controversy. As the mantle of the modern "Draco," whom he so freely, so forcibly, if not so wisely, quotes, has unquestionably fallen upon his own shoulders, he

should endeavour to exercise some forbearance towards those who have not had such exceptional teaching, nor such an inimitable teacher. From his concluding, I cannot say conclusive, sentence, I am again tempted to ask, Does he really mean to infer that the young shoots and leaves of the Vines referred to subsisted on the contents of the bottles only?"

— MR. E. LUCKHURST writes:—"I had a plant of CLEMATIS COCCINEA last spring which I kept in a pot throughout the year. It grew freely and produced several of its curious bell-like flowers, which, although not quite answering to its title of 'Scarlet Clematis,' were yet sufficiently novel and attractive, with an orange interior and bright vermilion exterior, to render it a welcome acquisition both for pot culture and for an open wall. It has been described as growing 5 to 6 feet high; but I have also seen it stated that it makes a stout annual growth directly from the crown of 10 feet, which dies down in autumn, so that it will be useful to mingle with other climbers at the base of lofty buildings, and also answer for mixed collections on walls. I have recently been able to devote some wall space to the trial of novelties, and intend now planting this Clematis there, and hope soon to know more about its real value as a decorative plant."

— THE same correspondent observes that "The valuable evergreen climber AZARA MICROPHYLLA is now in full bloom. Its flowers are hardly visible unless we look closely for them, being very small, and produced on the lower side of the branches in clusters at the axil of every leaf; they are yellow, and have a decided vanilla perfume. If the orange-red berries come as thickly as the flowers this season they will afford a striking contrast to the dark green glossy foliage, and add considerably to its already attractive appearance. The arrangement of its foliage is very curious; it comes in pairs, one leaf being more than twice as large as the other, the large leaves spread out on either side of the branches and the small ones turn backwards along it, and have such an elegant effect that I have frequently used the long slender sprays among cut flowers. For clothing a wall with perennial greenery it is a most useful shrub. I planted it five years ago against a lofty building facing the west, where it is much exposed to high winds, but it has grown freely, and is in a perfectly healthy flourishing condition."

— PRESENTATION TO DR. SCHOMBURGK.—In September last a meeting was convened of the friends and admirers of Dr. Schomburgk, Curator of the Adelaide Botanic Gardens, for the purpose of considering the best means of practically recognising the valuable services rendered to the colony by that gentleman in the cause of botany. It was then decided that his portrait should be painted and permanently placed in some portion of the Gardens under his care. A committee was formed, subscriptions were obtained, and the task of producing a painting of Dr. Schomburgk was entrusted to Mr. L. E. Tannert, Master of the School of Art. The work was recently finished, and it was decided that a public presentation of the painting should be made to the Board of Governors of the Gardens, and his Excellency the Governor was requested to perform the formal ceremony. January 30th was fixed as the occasion, and on that day the Museum of Economic Botany, situated in the centre of the Gardens, was converted into a temporary hall. The painting was hung over the northern interior door, and bore the following inscription:—"This portrait of Richard Schomburgk, Ph.D., &c., &c., &c., is presented to this Museum by a number of his friends in appreciation of the zeal, energy, and skill which he has devoted to rendering the Botanic Gardens an ornament to the City of Adelaide, and the pride of the Province of South Australia." The Committee also felt that Dr. Schomburgk ought to have something to personally retain as a souvenir of his friends, and with that object they had decided to give him an album address. After an appropriate address by the Governor the portrait was unveiled, and accepted by Dr. Wyatt as the oldest Governor of the Gardens. The Secretary to the Presentation Committee then read the following address, copied from the album:—

To Richard Schomburgk, Dr. Phil., &c.

Dear Sir,—At a general meeting held at the Town Hall, Adelaide, on Friday, the 21st day of September, 1883, it was resolved unanimously:—"That your portrait be painted and placed permanently in the Museum of Botany as a testimonial of your long services, pre-eminent abilities, taste, and zeal as Director of the Botanical Gardens, and that an album containing a suitable address be presented to you." In accordance with such resolution a portrait has this day been so placed, and we solicit your acceptance of this album as a token of our sincere respect and esteem, and as a recognition of your scientific attainments, and of the unsparing exertions you have devoted to rendering the Gardens an ornament to the city of Adelaide, the pride of South Australia, and the admiration of visitors to the colony. We desire to express our opinion that through your efforts and influence a taste for floriculture and the advancement of botany has been permanently established and wishing you long-continued health, prosperity, and happiness.

We are, dear Sir,

[Signed by His Excellency the Governor and about 160 other gentlemen. Dr. Schomburgk, in returning thanks for the well-merited honour, accorded praise to all who had contributed to the success of the Gardens, and the interesting ceremony was brought to a close.]

— THE *Florida Dispatch* states that the HORTICULTURAL HALL AT NEW ORLEANS will be 600 feet in length, having two wings of 250 feet, 100 feet wide, and a central hall 180 feet wide for a distance of 100 feet, surrounded by a dome covered with glass. The sides will be of glass, extending to the main roof, and it is intended to collect and range around the outer edge of the building, inside of the glass, rare collections of plants and shrubbery from Mexico, Central America, the islands, foreign countries, and the United States. A section of the building will be provided with hothouse apparatus for the protection of the choicest and most delicate plants. The double row of plants and flowers extending all around the building will, therefore, cover a distance of 1500 feet. Through the central part of the main hall and the wings the tables for an international fruit display will be ranged sufficient for 20,000 plates of fruit from all parts of the fruit-growing world. Superintendent Earle has nearly completed the premium list for the Pomological Department, which offers awards of about 15,000 dollars.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

In your columns of November 8th last Mr. Divers of Burghley made the following charge against this Institution—viz.,

"A friend of mine paid £10 10s. to this Society, thinking thereby to provide for a rainy day. By-and-by he became seventy years of age and unable to pursue his calling any longer. On applying to be placed on the pension list he says he was told he had paid the £10 10s. as a donation, and consequently was not eligible for the pension."

On November 16th I, by the direction of the Committee, through your paper requested Mr. Divers to favour me with the name and address of his friend, and also if possible with the name of the person who gave the information, in order that they might investigate the matter. Mr. Divers wrote to say he would make inquiry. Three months have elapsed and my Committee have heard nothing further on the subject.

I have been Secretary now over forty-one years, have attended every meeting of the Committee, and have no recollection of any such an occurrence. The old and constant attendants at the Committee meetings have been consulted, and they have no recollection of any such case being brought before them, and I have by the instructions of the Committee carefully searched through their minutes and can find no record of any such transaction.

Is it not contrary to common sense that a man who had paid £10 10s. to the Institution should sit quietly down and put up with the alleged subterfuge? The Committee is composed of twenty-four gentlemen carefully selected for their probity and intelligence, would they condescend to such an equivocation? Why did not the subscriber in question communicate with them individually, making known his wrongs? Are there not numerous subscribers to the Institution to whom he might have appealed? Is there not the gardening Press to whom he might have written? They would have ventilated the subject. And last, but not least, why did he not avail himself of Rule No. 29, which provides that any dispute between a claimant and the Committee shall be referred to arbitration, and the result of the arbitration shall be final? But no, not one of these courses have been adopted, and as Mr. Divers has not favoured the Committee with the information they were anxious to obtain, they can arrive at no other conclusion than that the allegations made by him are totally devoid of foundation.

Before Mr. Divers again allows his pen or his imagination to run riot and bring such an accusation against this Institution, which is conveying comfort and assistance to 104 families, the Committee would ask him to remember the old proverb, "Curses are like young chickens, they come home to roost," and that it is within the bounds of possibility that some day he may be anxious to share in the benefits afforded by this Institution which he has been at such trouble to disparage.—EDW. R. CUTLER, Sec., 14, Tavistock Street, Covent Garden.

THE CURRANT-BUD MITE.

BLACK CURRANT bushes could not be worse attacked by this mite in any part of the country than they are in the neighbourhood of Liverpool. Six years ago I discovered it upon some bushes here, and all the parts affected were burnt. The following pruning time they were worse than when first noticed, and all these infested were removed and clean young plants purchased. Two years after the whole, young and old, had to be uprooted and committed to the flames. Clean stock was again obtained and planted in the kitchen garden some distance away from the old plantation, and ten minutes' walk from any Black Currant bush. The following autumn these were perfectly clean, and were lifted and planted on the ground they were intended to occupy. Long before last autumn they were attacked, and experiments are being tried to rid them of this destructive pest. At the present time I am of opinion—and this is founded upon experience and

observation—that it is useless to try to eradicate the pest if bushes in the neighbourhood within moderate distance are subject to its ravages. The only way that I can see of thoroughly exterminating them would be for all who are troubled with this mite upon their trees to destroy them, and then not plant again, say for twelve months. It is evident they migrate from garden to garden.

I believe that this *Phytoptus Ribis* has established itself in the buds long before the month of November, for the buds may be noticed swelling or “knotting” soon after they are formed along the young wood. Their work of destruction is going on all winter, and by the time the buds should begin to swell the mischief is complete. During the past few years I have examined large numbers of buds during the autumn, winter, and spring months, and found living insects, but never more than one or two in each bud. They are so minute that it is impossible to discern them with the naked eye.—W. BARDNEY.

THE MANCHESTER HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.

THE closing meeting for the present session of this Society was held on Thursday evening, in one of the rooms of the old Town Hall, King Street. Mr. Bruce Findlay, the President, was in the chair. There was a large attendance of members.

Mr. William Swan, the Secretary, read the report of the Committee for the past session. They congratulated the members upon the work done during this period. The Society was formed in October last. In no way could the objects of the Society be more efficiently accomplished than in becoming, as it were, a centre towards which all the practical improvements made in its vicinity should tend. More than one individual distinguished for love of natural science in general, and of horticulture in particular, had promised to give lectures next session. The number of members at present on the books was 123.

Mr. Robert Tait, the Treasurer, said the session ended with the balance on the right side. The Society started with a financial difficulty because the amount of the subscription, half a crown, was merely nominal. It was thought if they could obtain fifty or sixty members the Society might possibly hold its position, but with the large number of members who had now joined, and with one or two donations, the difficulty was removed. He then proceeded to read his financial statement, which showed that the total amount of subscriptions were £17 10s. 6d., and that after meeting the expenditure there remained a balance in hand of £5 18s. 4d.

Mr. Bruce Findlay moved the adoption of the report and Treasurer's statement. It was gratifying to know, he said, that many young gardeners had attended the meetings during the past session, and it was to be hoped that the number next session would be increased. It was also gratifying to those who had had the work of convening the meetings to know that they had been well attended, and that the lectures were appreciated. The objects of the Society were the improvement and increase of gardeners, and one result would be, he thought, that gentlemen wanting gardeners would apply to the Society for them. In fact, he had before him such an application from a gentleman.

Mr. W. Nield said he had derived much profit and pleasure through attending these meetings. It might be wise to throw out some suggestions as to the kind of papers that should be read before the members at future gatherings. He had found that several members were not in favour of addresses on botanical subjects. He himself was much interested in botany. If they had papers on botanical subjects those members interested in them should be made acquainted with the fact, so that they might attend. Some members thought that they should have nothing but papers of a practical nature.

Mr. Bruce Findlay thought they should vary the subjects as much as possible. Inasmuch as botany was really the foundation of the Society, he thought it would be suicidal to omit botanical subjects, and if such subjects were brought forward evenings would be set apart for them. Mr. Richard Astley maintained that botany and horticulture ought to go hand in hand. If desirable the lessons might be simplified, so that every gardener could understand them. The practical botanist and gardener joined together made the best man in each branch. Mr. William Plant remarked that they as gardeners got very little knowledge from papers on strictly botanical subjects. His idea was that they should try as far as possible in their addresses to combine practical gardening with scientific botany, and thus blend together theory and practice.

The motion for the adoption of the report and Treasurer's statement was then agreed to. It was decided on the motion of Mr. Butterworth, seconded by Mr. Thomas Lunt, and supported by Mr. Nield, that at future meetings the papers read should be of a nature similar to those which have already been brought before the Society.

A member suggested that a branch should be established in connection with the Society for the benefit of members in sickness or in needy circumstances. The idea seemed to find favour with the meeting, but it was decided that the subject should be brought forward for consideration next session. A vote of thanks to Mr. Swan concluded the proceedings.

CULTURE OF THE TUBEROSE.

THE Tuberose is not so well known, and consequently not so extensively cultivated in private gardens, as it deserves to be. This, too, is surprising, seeing that it is easily cultivated, and that its pure white and delightfully sweet flowers are so admirably adapted for bouquets and buttonholes during the summer, autumn, and early winter months; and to say that the individual blooms of the Tuberose—of which, roughly speaking, a spike contains two or three dozen—are nearly equal, if not quite, to Gardenias, which flowers they somewhat resemble, would be no exaggeration of their value. The Tuberose, like the *Eucharis*

amazonica, is very accommodating in its floral development, inasmuch as it only expands a few flowers at intervals of a few days at the bottom of the panicle, and so on, until the topmost flower is developed, and on this account a dozen plants in this stage of floral development would, for the purpose above indicated, yield a moderately good supply of flowers for four or five weeks at a time, every one of which, as they wire well, may be turned to good account. The cultural details are simple, but should be persistently attended to if success in flowering this sweetly scented plant is to be attained, and are briefly these. When the bulbs are being potted, which, in order to extend the flowering period, should be done at intervals of a fortnight from February to the middle or end of June, all the little bulblets and eyes should be rubbed off, and any suckers that may afterwards spring from the bulb be immediately removed, so as to concentrate the sap stored up in the bulbs to the production of flower spikes, otherwise failure to flower will, in all probability, be the result.

The Tuberose delights in a rich sandy loam with a sprinkling of leaf mould, and should be grown in 3-inch pots, burying three parts of the bulb, from which the old fibrous roots have been previously cut, in the soil. The pots should then be plunged to the rim in a Melon or Cucumber frame to start the tubers into growth, and subsequently the plants should be grown on near the glass to insure a sturdy growth. The soil should be kept rather dry until the flower stem appears, and when this is about 6 or 9 inches high, the plants being sufficiently moist at the roots, should be shifted into 6-inch pots, employing all loam. After this water should be withheld from the roots for a few days until they have taken to the new soil, and as the pots become filled with roots, diluted liquid manure should be given them, which will tend to the production and development of finer flowers. The plants should be syringed twice a day, if in a high temperature, to keep them free from the attacks of red spider, to which they are subject; but when the flowers begin to expand, syringing, which would cause the flowers to fade, should be discontinued, and the plants kept in an airy greenhouse or conservatory, where their perfume will be very agreeable.

The Pearl, a dwarf American variety from 2 to 3 feet high, and the African, from 5 to 6 feet high, are the best varieties to grow. Perhaps the individual flowers or pips of the last-named variety are larger and more double than those of the Pearl. The African variety is of recent introduction. The bulbs are much larger than the American ones. The only thing against the former variety in comparison with the latter is the fact of its requiring longer and stouter sticks to support the flower spikes. The foregoing remarks are made for the information and benefit of the uninitiated in Tuberose culture, and that if the instructions herein given are followed, and good bulbs obtained, success in flowering satisfactorily this charming plant will be their reward.—H. W. WARD.

“SOLIDIFIED SAP.”

WHEN I wrote last under the above heading it was not for sake of controversy, but in the hope of getting a clearer meaning of the term “stored up sap that has never solidified,” used by Mr. Iggulden (see page 43). What I understand stored-up sap to be is sap never really solid, but held in abeyance by cold or other natural causes, and flowing again when these are withdrawn; but to read it so in your correspondent's article leaves it meaningless. I look to Mr. Iggulden for a solution, which I have no doubt he is well able to give.—RITCHIE.

[Your correspondent will perhaps remember that I believe in the Grape Vine's capability of storing up a certain amount of food, but not in a liquid form, as he seems to imagine they do, or otherwise at pruning time—supposing I am right in the impression that the cells or sap vessels are connected—the liquid sap must drain out of the lower wounds. I used the expression “solidified sap” as being the simplest way of alluding to it without describing the process of the change in the character of the sap. The Vines under notice were not in a healthy state owing to defective root-action. No Vines in such a condition will ripen their wood or properly store food. If I had pruned those Vines referred to I know they would have bled freely; and this I hold would have been ruinous, as nothing coming from the roots subsequently would have compensated for the loss of that food which is so necessary for the formation of strong fruitful growths. Vines fairly well treated and with a good root-action contain no liquid food during the winter months, and if not solidified what has become of it?—W. IGGULDEN.]

NOTES ON POTATOES.—Having to grow Potatoes for a very large establishment, I take much interest in everything relating thereto, and Mr. Iggulden's observations under the above heading, page 183, were practical and important. Having often publicly given my estimate of the Champion, I am proud of the foremost position, as a general crop Potato up to March, that he gives it, but I dissent from having the drills or rows 40 inches asunder for it; larger tubers would be obtained, but

I and everyone I discussed the point with prefer smaller ones without a hollow centre. I intend to make my drills 32 inches apart. Another point in favour of the Champion is that it is the driest, and therefore a capital Potato for a dyspeptic or acid stomach.—W. J. MURPHY, *Clonmel*.

SOWING SEEDS.

THE above subject is a very important one to gardeners, yet the work is carelessly or indifferently attended to in far too many instances.

In the few remarks I offer for the benefit of your less experienced readers I shall endeavour to point out a few of the many causes of failures and how they may be remedied. To make my remarks more seasonable allusion will be made more particularly to annuals and such seeds as will be sown under glass during this and the next month.

The first requisite to success is procuring genuine seeds. Purchase the best to be had and from a reliable source, success or failure then rests very much with the cultivator. First as to failures—chief amongst these is sowing at the wrong time and in unsuitable soils. To illustrate better what I mean I will give an instance how such work is sometimes performed. It is to be hoped the practice is not general, but the writer has seen it more than once. It is this: Many annuals about the end of February or the beginning of March are sown indiscriminately. Numbers of different sorts of seeds are sown together, and this is a very bad practice. In the first place, it is a great waste of time and room when both are valuable; and secondly, with such free-growing annuals as Perillas, Tagetes, Tropæolums, and Zinnias, and others too numerous to mention, it is very detrimental to the plants to sow so soon. Again, seeds of Cucumbers, Melons, Vegetable Marrows, Tomatoes, and other quick-growing plants are frequently sown long before they are wanted, and in consequence occupy unnecessary space, to say nothing of the injurious effect it has upon their health by the check they receive through being root-bound. That failures will occur all know, indeed, the best practitioners are liable to them, but if a little common sense were used in the matter they might be much reduced.

The secret of success, if there is any secret in the matter, may be summed up in a few words. Sow always, if possible, at the right time and in properly prepared soils. To do this a thorough knowledge of the time the seeds to be sown will take to come to maturity is essential, as well as the time they are wanted at that stage.—JOSEPH RICHARDSON.

TOWN GARDENING VERSUS CHEMICAL VAPOURS.

GARDENERS who have practised all their lives in the pure atmosphere of the country are fortunate. They can form no conception of the perplexities and difficulties that others have to contend against in the neighbourhood of towns. The ordinary smoke of a town is not so destructive to vegetation as many people imagine. For instance, vegetation flourishes about London, even in the streets, better than in gardens four miles from Liverpool, and the same distance or a little more from the mouth of the river Mersey. It is not the ordinary smoke of the city that proves so detrimental to vegetation generally, but the chemical vapours that are carried to us with the north-westerly winds. I suppose it is the sulphuric acid from these chemical works that scorches and withers all with which it comes in contact. When large trees of Oak, Beech, Sycamore, Elm, and other forest trees, that have braved many a storm from the sea, but still grew and flourished, are now dying from the deadly influence of this destructive acid, we need hardly wonder at lowlier and less hardy forms of vegetation being cut, disfigured, and rendered unsightly.

Up to the middle of December I thought our lawns had never looked better, and congratulated myself upon their improved appearance through liberal top-dressings annually. But after one frost and a dense fog heavily charged with chemical vapours they had a scorched brown appearance as if burnt.

Although the weather up to the present has been remarkably mild, evergreens have suffered more in the gardens here than I have seen them in some of our severest winters when the temperature fell below zero. The storm experienced a few days after the dense fog alluded to carried with it salt spray from the sea. Rhododendrons (hybrid varieties) which endure exposure to cutting winds much better than *R. ponticum*, are much browned, and their leaves are falling. The latter exposed to the force of the gale are little better than bare sticks. Aucubas have suffered worse than I ever saw them after frost, and their foliage is as black as if each bush had had a fire beneath it. The Silver and the common green Holly in exposed places are completely stripped of their foliage, while the wood in many instances is already dead. The bold and hardy *I. Hodginsii* has suffered equally, some of the most exposed scarcely having a leaf upon them, the wood fast turning yellow, and will die. Shortly after this storm Holly leaves fell off in large numbers in this neighbourhood. The fog and storm combined caused this destruction, but the latter, I believe, did the greatest mischief. The glass of our conservatory and houses was thickly covered with salt, and had the appearance of shading just applied and caught with a shower before being dry.

This is disheartening to a gardener, but there is another side to this matter which is more perplexing still. These chemical vapours not only prove detrimental to vegetation outside, but when carried with a strong, or moderately strong wind, affect the inmates of our plant and fruit houses. This is more marked when fogs prevail at the same time. During the past two or three years we have generally experienced some of these fogs, and the wind in the direction for carrying these deadly

vapours when that now popular plant the Chrysanthemum has been developing its blooms. When plants have been grown, watched, and tended carefully for months, and then the flowers are cut and spoiled in a few hours or a day, it is most annoying. The Chrysanthemum has suffered much in this neighbourhood during the past few years in this way. Last autumn many flowers were destroyed and did not last many days after the fog cleared away. Zonal Pelargoniums (single varieties) suffer much; the flowers will fall in a shower, and after one or two fogs are useless. They do not suffer so badly from the fogs when the wind is not in a north-westerly direction. Crotons suffer, and none more so than that useful variety majesticus. I have had this throw off the whole of its foliage, while other varieties have not appeared to be affected, and on that account have had to discard it, except a plant or two.

The greatest attention in admitting air to all our glass houses is exercised when the wind is in the direction mentioned, but at times we are compelled to admit air, and have had the young tender foliage of Vines injured in consequence. I do not think we need wonder at the buds of Peach trees falling. They are falling here this year, and commenced about the same time as the Hollies, not only in the early house but throughout the range. Either chemical vapours or not lifting the trees is the cause; the former is the more likely. It is certain that annual lifting is a sure remedy against the buds falling. Our trees have been lifted annually for five years until last season.

Some years ago I was very anxious to be in the neighbourhood of a town, especially after practising in some quiet country district; but my advice to those in such places is, Be contented, for I wish this garden was in some rural district free from destructive chemical vapours where vegetation would grow and flourish.—W. BARDNEY.

POINSETTIA CULTURE.

REFERRING to Mr. C. H. Stephens' article on the above subject (page 60) I would like to discuss a few points in regard to his system of cultivating this fine autumn and winter-flowering plant. In the first instance I question if the plants should be removed to bottom heat as soon as they have flowered. Would not the cuttings come stronger by resting and ripening the wood? Secondly, why not insert the cuttings singly in thumb pots, so that they can when struck be shifted without a check? Thirdly, I cannot agree with Mr. Stephens by any means when he advises the plants to be housed in a temperature of 48° falling to 45°, for unless the greatest care be taken in watering they are sure to lose their bottom leaves. I do not consider heads 13 inches in diameter up to the standard, although by growing them as he advises I daresay that would be about the maximum size. Does he not consider the height of the plants of any importance? I think it comes next to size of head in point of excellence in their culture. Hoping your correspondent will pardon my criticism of his article, and kindly explain the details of his system of culture. I agree with the general substance of Mr. J. Saunderson's letter, which seems to proceed from a long-experienced cultivator of this plant. My object in penning the foregoing is simply to gain information.—A YOUNG READER.

MR. OWEN THOMAS.

As not a few of our readers will like to see what manner of man the newly appointed gardener to Chatsworth is, we have pleasure in publishing his portrait, which, we may add, is excellent and life-like. The selection of Mr. Thomas for the important charge on which he enters on Monday next, for which there were so many excellent applicants, indicates that he is a man of capacity—skilled as a gardener, well educated, and of becoming demeanour and address. Only a person possessing those qualities can fill satisfactorily such a responsible position in the gardening world as the subject of these notes will shortly occupy.

The professional career is not an eventful one. He has simply been trained in good gardens under good gardeners, and has made the best use of his opportunities. Born in a small village (Hermon) in Anglesea in 1843, he eventually commenced his gardening career at Bodorgan. He thus had the advantage of receiving his first lessons from Mr. Ewing, the inventor of glass walls, and who was well known to all readers of gardening journals twenty years ago as one of the most competent of British gardeners, and who, we are glad to say, is still hale and hearty, living in Chester in retirement on his well-merited success. Those who knew Bodorgan at that time (and they are many) need not be told that every branch of gardening was well and successfully represented there. Orchids that were not so common then as they are now, were especially fine, fruit both under glass and out of doors was excellent, and the rare collection of Coniferous trees planted with so much care and judgment now rank among the rarest and best to be found in the kingdom. Mr. Thomas was at Bodorgan about eight years.

In the spring of 1863 he was transferred by Messrs. F. & A. Dickson to the gardens of the Hon. C. Parker Jervoise, Aston Hall, near Sutton Coldfield, where he spent two years under Mr. Gardner, now and for many years gardener to Sir John Astley, Elsham Hall, Brigg, and to whom he states he shall always feel indebted for valuable practical lessons in gardening which have done him good service since, and also for his rare example in punctuality, straightforwardness, and gentlemanly conduct.

In the spring of 1865 he was sent by Messrs. Veitch of Chelsea as journeyman to Drayton Manor Gardens under Mr. Ballingall. In a little over twelve months he was offered the general foreman's place, which situation he filled for nearly four years. In the spring of 1869 he

left Drayton Manor for Messrs. Veitch's nursery with the object of obtaining a head gardener's place, and remained with them about eight months. At the end of that time he was sent for by Sir Robert Peel, Bart., to take temporary charge of the gardens at Drayton until a head gardener was appointed, Mr. Ballingall having left. In the course of a fortnight after Sir Robert and Lady Emily Peel offered him the head gardener's place without any solicitation on his part, which position he occupied with great satisfaction to his employers for thirteen years.

him the appointment as chief of the far-famed ducal gardens at Chatsworth. They will be in good keeping.

FURNISHING THE CONSERVATORY.

At the first glance this does not appear to be a subject on which much need be said. I, however, consider it is of much



Wm. Thomas

While at Drayton Manor, in addition to the full charge of the extensive and fine gardens there, he carried out many important improvements in the pleasure grounds, having oftentimes as many as fifty men under him. In July, 1882, he took charge of the beautiful gardens and grounds of John Corbett, Esq., M.P., at Impney near Droitwich, from whom he has received much encouragement and kindness, and who has expressed himself well pleased with his short service at Impney.

Such is the outline of Mr. Thomas's experience. His long term of seventeen years at Drayton, and his success in the management of the place and a large staff of men, has no doubt had due weight in securing

importance, and gardeners frequently lose sight of how their interests are involved in it. The gentleman engaged in the cares of business, and anxious under the risks which attend its operations, if he is the possessor of a conservatory, frequently turns to it for that calm enjoyment which is so grateful and which is often an antidote to those cares. Here, in the contemplation of its beautiful inmates, he may for a space forget the anxieties which have oppressed him. It may well be that the hope of this restful enjoyment has been the feeling which, more

than any other, has conduced to the erection of that structure; and it follows, then, if the conservatory from its unattractiveness fails to afford gratification, then it does not fulfil the purpose for which it has been built. This purpose is only half accomplished by furnishing cut flowers for the rooms of the dwelling house, or by enabling the proprietor to indulge in the pleasure of presenting an occasional basket of flowers to his friends. In the conservatory no unattractive plant should be suffered to have a place. If sickly it should be put where it can be nursed, with the view of bringing it again into a healthy condition. If its season of bloom is over it should be removed; and no plant whatever, unless pleasing through the profuseness or brilliance of its bloom, the richness, delicacy, or gracefulness of its flowers, elegance of growth, colour of foliage, or other qualification, should be allowed a place in that house. A few ornamental-foliage plants of a striking character and also Ferns, especially of the Maidenhair type, may be used with advantage; but it must be remembered that no quantity of the most brilliantly coloured or the most graceful foliage will compensate for an insufficiency of flowers, and that the chief attraction of the conservatory will always be in the flowers which it may contain.

In order to keep up a supply for the whole or even the greater portion of the year certain cultural rules must be observed. They may be varied slightly according to the circumstances of each place, but must not be entirely departed from. A regular and systematic course of operations in the preparation of plants is necessary. No haphazard cultivation, without any consideration as to the time of blooming, will succeed. It is true that as regards many of the summer groups their time of flowering is determined for us, and we can do little to advance or retard them; but there are other portions of the year during which it is more important the brightness of the conservatory should be maintained, and the plants for that purpose must be prepared with special reference to those times.

In endeavouring to carry out the requirements of cultivation, on which success depends, many difficulties will be encountered. Insufficiency of means in various ways—defective heating apparatus, unsuitable soils or houses, or perhaps both—and many rough-and-ready appliances will have to be used; and it is only by a close and intelligent attention and unflagging care that fair success can be obtained. But in the culture of greenhouse plants, as much perhaps as in anything, success depends on attention to details. Many hindrances, however, will present themselves which can be neither mitigated nor removed. The remedy for structural difficulties does not usually lie in the power of the gardener, and the obstacles which are met with in the cultivation of plants in pots are so numerous and varied that a correct estimate can be made only by those who have encountered them. There are, of course, many gardens where, from deficient accommodation and appliances, an abundant and continuous supply of flowers is impossible; and in places of moderate capacity where all or most of the houses are devoted to fruit culture it can be accomplished only to a limited extent. Where but a single structure exists, the character and appearance of a conservatory cannot be maintained in it. Plants are not in flower at all seasons of the year, and if no other places are provided for them they must remain where they have flowered after that period is over, unless they can be arranged out of doors. Two or three other houses should minister wholly or in part to the wants of the conservatory. Where, in addition to a Peach house or vinery there are a good greenhouse and pit, these, together with a frame or two, should be sufficient to furnish a fair quantity of flowers all the year round.

Let us enumerate some of the many plants available for this purpose. From the time when the spring bulbs begin to bloom until the end of September there is seldom any complaining of the lack of flowers. Spring, summer, and early autumn generally produce such an abundance of bloom both indoors and out, that all which need be done here is to glance at the chief groups of greenhouse plants in the order of their flowering. Following closely on the Hyacinths, Tulips, Deutzias, and Spiræas the Azaleas comprise the chief of the great groups on which we mainly depend; and where there is even a moderate collection of these the period during which they are at their best will probably be the gayest of the year. I need say little of these well-understood plants. The form which appears to me best adapted for general decorative purposes is the umbrella shape; but some, particularly of the double varieties, are better trained to some other form, as the blooms by reason of their weight lie in a position unfavourable for the eye seeing them advantageously. Young Azaleas in small pots are much benefited by placing the pot in which a plant is growing inside a larger one,

and filling the space between them with moss or some other suitable material. Their fine hair-like roots are thus kept more cool and moist. Many of the newer varieties far surpass some of the older forms in cultivation.

Long before the last of the Azaleas are out of bloom the earliest Pelargoniums will be claiming a place in the conservatory. We have in them a class of plants which for profuseness in flowering and telling combinations of brilliant colours have few equals; while the time during which they may be had in bloom extends at least over five months of the year. In an ordinary greenhouse the earliest varieties will commence flowering by the beginning of May, and at the end of September some of them will still be showing their richly coloured flowers. That their flowering may cover this long period it is necessary that certain treatment be given them. Most of the free-flowering sorts, if not checked after the first flowering, will flower twice in the same season. Such varieties as Digby Grand, Duchess of Bedford, and Bridal Bouquet will bloom freely a second time, a large proportion of the flowers coming from the axils on the old stems, so that in cutting off the dead blooms care should be taken not to cut too low down. The dwarf compact habit of many of the varieties in this section well adapts them for late blooming, as they need not be pruned so closely as the taller-growing sorts; and close pruning of Pelargoniums late in the year should always be avoided, or they will probably not break again, the energies of the plants at that time being nearly exhausted, and the season approaching when they should be in a state of rest. For late flowering, however, young plants from cuttings struck the previous autumn are the best. These, regularly tied down and pinched until the beginning of July, then placed in a cold frame or even in a sheltered position out of doors till the end of August, may be returned to the greenhouse to bloom, which they will continue to do far into the autumn. These late-flowering plants must not be pruned back like those which have bloomed earlier; they must not be entirely denuded of their foliage. Stopping any young shoot which may be too long is all that should be done. Neither must they be disrooted like the others, but allowed to remain undisturbed till spring.

With the Pelargoniums during June and July we have the herbaceous Calceolarias, which are deservedly popular for greenhouse and conservatory. As many of these as can be accommodated should always be grown, as few plants present a more beautiful and interesting appearance.

Of tuberous-rooted Begonias we have an extensive assortment, and their usefulness as decorative plants can scarcely be over-rated. Their floriferous character, beauty and variety of colour, and the gracefully pendant habit of their flowers have established them in popular esteem. From the beginning of June to the middle of October some of these plants will bloom continuously, and they are so accommodating in their habits that they are adapted for places of the smallest capacity. Dying down to the tubers, they may during winter be packed away anywhere secure from frost. When starting into growth the following spring, those which are not in pots sufficiently large, or whose shoots appear weak, should be repotted. Where they have enough root room, with good drainage, and are pushing strongly, repotting is not necessary; indeed, old tubers in large pots will grow and bloom well for several years in succession without being repotted. They must, however, have ample drainage. For the purpose of supplying cut flowers the section of which Begonia Sedeni may be taken as the type is better adapted than most of the others, although its flowers are not of the largest size. Begonias, however, are less valuable for cutting than for conservatory decoration.

Roses, although such general favourites, are not the best plants for producing a bank of bloom in the conservatory; and although that structure can scarcely be considered complete without the presence of the acknowledged queen of flowers, yet Roses, to be of much value there, should be of those varieties which will flower early and again in late summer or autumn. Most of the sections can be had generally so much better in shape, substance, and colour during early and midsummer when grown out of doors, that they will be much less esteemed in the conservatory during that period than they will be before and after it. When, however, the declining temperature and the dull, foggy, or rainy days of autumn render a good Rose out of doors a rarity, then a few Teas or Hybrid Perpetuals grown inside will be very welcome. One of the best Roses for the conservatory is La France. It does not produce a bloom from every shoot at the same time, but it will give a few of its splendid and deliciously scented flowers three times during its blooming season; and, unlike many other varieties, it does not

change or lose its colour under glass.—GEORGE WINTERBURN, *Weetwood Lane, Leeds.*

[The first-prize paper read at the Leeds Gardeners' meeting.]
(To be continued.)

CULTURE OF AZALEA INDICA.

THE varieties of *Azalea indica* are very useful and accommodating plants, and by having a good selection, a succession of bloom may be had from Christmas until the end of June. No plants are more effective either for house or conservatory decoration, and they are also well adapted for cutting. Large plants of the Fielder's and Chelsea Whites are valuable, and should be justly prized. I do not think there are two other Azaleas that will endure cutting like these excellent varieties, and by suitable treatment after blooming they will be as satisfactory as in the previous season. I will not recommend the propagating of Azaleas to amateurs and gardeners for various reasons. The principal one is, that useful decorative plants may be procured from any nurseryman who makes a speciality of Azaleas at a reasonable rate, and far more satisfactory than can be had by propagating them at home.

Failure with Azaleas is often due to improper treatment after they have flowered, especially if they have been forced. They are forced into bloom in a high temperature and a steaming atmosphere, and after blooming are placed in any corner of a cold draughty house. It is also a great mistake to overpot Azaleas. They should only receive small shifts, and then only if they require it. They should be potted very firmly, ramming the soil well round the ball. The soil should consist of good black peat and coarse sand, the pots being well drained. After Azaleas have flowered the seed pods should be picked off, repotting the plants if they require it; if not, give them two or three dressings of Standen's manure through the season, sprinkling it on the surface of the soil. Place them for the growing season in a warm moist house, syringe them well twice a day, and they will form abundance of bloom buds by the end of the season. They should then be hardened, and placed in the open air for two or three weeks in a sunny position, but sheltered from winds, subsequently transferring them to a light airy house. Plants after they have been forced should be placed in growing quarters directly after blooming. If care is taken on this point those that came into bloom first will form their flower buds early, when they will not require such hard forcing as those that set their buds late in the season.

Thrips are the greatest enemy to the Azalea, and should be destroyed by dipping small plants in a solution of nicotine soap. Large plants are more conveniently fumigated.—A. YOUNG.

ROYAL HORTICULTURAL SOCIETY.

MARCH 11TH.

PLANTS in flower were well represented at this meeting, the conservatory presenting a very bright aspect, groups of Cyclamens and hardy Primroses and Polyanthus being the leading features. The last-named were much admired, and their value at this time of year cannot be over-estimated, as either out of doors or in pots under glass they are very handsome.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Present—Messrs. Phillip Crowley, J. Lee, J. E. Lane, G. T. Miles, William Paul, J. Burnett, G. Bunyard, S. Lyon, G. Goldsmith, A. Howcroft, J. Roberts, and Dr. Robert Hogg. Messrs. J. Veitch & Sons, Chelsea, were adjudged a bronze Banksian medal for sixty dishes of Apples in fine condition, fresh, firm, and of good colour. Especially noteworthy were Norfolk Beefing, Alfriston, Dumelow's Seedling, Annie Elizabeth, Lord Derby, Cooling's Favourite, Winter Peach, London Pippin, Duck's-bill, and Mère de Ménage. Mr. J. Burnett, The Gardens, Deepdene, Dorking, was accorded a vote of thanks for a collection of two dozen dishes of Apples, including some fine samples of Dumelow's Seedling, Norfolk Beefing, and Shepherd's Seedling. Both this and the preceding collection indicated how well Apples have kept this season, for some of them looked as fresh as if they had been only just gathered. Mr. R. Gilbert, Burghley Gardens, Stamford, sent several samples of a cross between Chou de Burghley and a Savoy, the latter being the male parent, and named Gilbert's Universal Savoy. They were of moderate size, very firm, and white; but the Committee expressed a desire to see it again, the specimens to be sent to Mr. Barron. Mr. Gilbert also sent samples of Bedfordshire Champion Onions, which were very fine and solid. Mr. Allan, The Gardens, Gunton Park, Norwich, sent fruits of a seedling Apple, which were considered to be inferior to many other varieties already in cultivation.

FLORAL COMMITTEE.—Section A.—G. F. Wilson, Esq., in the chair. Present—Messrs. T. Moore, J. Hudson, J. Fraser, H. Herbst, J. Woodbridge, H. Ballantine, J. Dominy, James O'Brien, Edwin Hill, J. Laing, Dr. M. T. Masters, and Rev. G. Henslow. Section B.—J. D. Llewelyn, Esq., in the chair. Present—Messrs. H. Eckford, H. Bennett, W. Bealby, J. Douglas, J. James, J. Child, G. Duffield, H. Turner, and H. Cannell.

Mr. A. Waterer, Knap Hill, Woking, showed two handsome specimen plants of *Andromeda japonica*, 4 feet high each and loaded with flowers, the long drooping panicles of white bell-shaped blooms being very attractive.

Several small plants were also shown to indicate their early-flowering character. Mr. Waterer was also awarded a silver Banksian medal for a group of 120 hardy Primroses and Polyanthus, comprising a great variety of colours, white, yellow, purple, mauve, lilac, deep red, and maroon. The plants were very healthy, and bore from six to twelve trusses of flowers. Some of them were certificated and are described below. Mr. J. James, Woodside, Farnham Royal, Slough, was awarded a silver Banksian medal for a large group of magnificent Cinerarias, the flower of astonishing size and richness of colours. It was indeed one of the finest groups Mr. James has ever shown, and proved not only the fine character of the strain, but also how well their culture is studied. Messrs. J. Veitch & Sons, Chelsea, had a pretty group of plants, *Staphylea colchica* being especially noteworthy, plants in 48-size pots, having twelve to eighteen spikes of white flowers each. *Primula obconica* was pretty, and several good Amaryllises were certificated. *Adiantum cuneatum* deflexum, a garden variety with small pinnules and graceful fronds, was represented by a strong plant, it is quite distinct and elegant. Messrs. H. Cannell & Sons, Swanley, had a handsome group of double Primulas, bright coloured Cinerarias, and the useful *Begonia Carrieri*, which was certificated. The Cinerarias were particularly fine, substance and size of flower being combined with neatness of form and clearness of tint. Mr. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, exhibited a group of Orchids, the most prominent plant being a handsome specimen of *Lælia superbiens*, with seventeen pseudo-bulbs with three spikes 4 to 5 feet long and bearing ten flowers each. *Dendrobium luteolum* had three growths with from two to eight flowers each. *Saccolabium giganteum* illustre had two spikes of its white purple-spotted flowers. *Cœlogyne sparsa* is a curious and small-flowered species. The sepals and petals creamy white, the lip stained with brown; and *Cœlogyne Lemoniana* had six good spikes of flowers, the lip faintly tinged with pale yellow.

J. H. Mangles, Esq., Valewood, Haslemere, sent four superb trusses of *Rhododendron argenteum*, each with about twenty large white bells. A large plant of *Rhododendron grande* was also shown bearing several trusses of flowers. G. F. Wilson, Esq., Weybridge, sent a spike of *Odontoglossum Alexandræ* with fourteen fine flowers, some spikes of *Ada aurantiaca*. Mr. Ballantine, gardener to Baron Schroder, The Dell, Egham, showed a plant of *Odontoglossum Pescatorei Veitchii* with twenty-seven flowers, the blotches and bars of purple being extremely rich. Mr. J. Wiggins, gardener to W. Clay, Esq., Kingston, showed several good Primulas, Cinerarias, Cyclamens, several with fine flowers, and of good colour. Messrs. Paul & Son, Cheshunt, showed several new Amaryllises with large flowers, one being named General Gordon, but quite distinct from Messrs. Veitch's variety. A single Rose, named *Camellia japonica* was noteworthy, the flowers being suggestive of *Rosa rugosa* alba in size and shape. A silver Banksian medal was adjudged to Mr. H. B. Smith, Ealing Dean, for large groups of admirably grown Cyclamens, white, rose, purple, deep red, rich parti-coloured, the flowers of great size and numerous. A vote of thanks was accorded to Mr. G. Stevens, Putney, for plants of the bright *Abutilon Scarlet Gem*, which were flowering profusely. A bronze medal was awarded to Mr. J. Odell, Hillingdon, for a group of Queen Victoria Primulas, the flowers being of a very rich red colour, but not quite high enough above the foliage.

Messrs. J. Carter & Co., High Holborn, showed several hardy plants amongst them being *Saxifraga oppositifolia* major, with large flowers of a deep colour; *Saxifraga Sanctæ*, with bright yellow flowers; *Soldanella montana* in first-rate condition, flowering freely, and well deserving the cultural commendation awarded for it; *Iris reticulata*, *Bulbocodium vernum*; and the blue *Primula Scot Wilson* were also attractive. A vote of thanks was accorded to the collection. A vote of thanks was accorded to Mr. R. Dean, Ranelagh Road, Ealing, for a dozen plants of *Polyanthus Primroses*—General Gordon, crimson purple; Bridal Wreath, white; Novelty, lilac purple; Blue Beard, dark purple blue, very distinct; and White Queen, being the best of the varieties. A bronze Banksian medal was awarded to Messrs. Collins Bros., 39, Waterloo Road, S.E., for a fine group of *Anemone fulgens* flowers from Pau, and *A. fulgens* multipetala, and the Tenby Daffodil (*Narcissus obvallaris*), the bright yellow flowers being very attractive. Messrs. Barr & Son, King Street, Covent Garden, were awarded a bronze Banksian medal for a handsome collection of *Narcissus pallidus præcox*, which was awarded a first-class certificate at the last meeting, together with scarlet *Anemones* arranged with them for contrast.

First-class certificates were awarded for the following:—*Dendrobium Findleyanum giganteum* (Mr. C. J. Salter, gardener to J. Southgate, Esq., Selborne, Streatham).—A magnificent variety, differing only from the type in the great size of the flowers, which are over 3 inches in diameter, the lip nearly circular, 1½ inch across, and rich yellow in the centre.

Cattleya Trianae splendidissima (B. S. Williams).—A fine variety with white sepals and petals, and an intensely rich crimson lip and a yellow throat. It much resembled a variety of C. Mendeli, and if it had flowered a little later in the season would have well passed for one. It is, however, a superb Orchid, the colour of the lip being wonderfully rich.

Browallia Jamesoni (Cannell).—A charmingly graceful and striking plant, somewhat suggestive of a large *Rondeletia speciosa* in habit and form of flowers. The leaves are elliptical, 1½ inch long, the throat drooping and terminating in large clusters of tubular flowers with a bright orange limb nearly 1 inch in diameter.

Begonia Carrieri (Cannell).—Resembling a large-growing B. Schmidt, compact in habit, and bearing a great number of pure white flowers. A most useful winter-flowering plant either for cutting or general decoration.

Violet Wellsiana (Mr. Wells, Fern Hill, Windsor Forest).—A single variety. Flowers about an inch in diameter, deep purple and very fragrant. Plant strong in habit and free.

Polyanthus James Douglas (Waterer).—A fine variety; flowers flat, circular, pale yellow, with orange centre, 1½ inch in diameter, thirteen flowers in a head.

Polyanthus Prince of Wales (Waterer).—Flowers of wonderful size, 2 inches across, of a rich crimson colour, with a broad starry orange centre, eleven in a head.

Cyclamen Princess Ida (Edmonds).—A delicately pretty variety, with fine flowers, with broad petals of a soft pink colour. Very handsome.

Azalea indica Little Beauty (Veitch).—Very much like *A. amœna*, with rosy pink flowers 1½ inch across. The plant is of compact habit, and flowers very profusely. It was raised by Mr. Hovey of Boston, U.S.A.

Amaryllis General Graham (Veitch).—A grand variety, with very dark scarlet flowers 6 inches across, with broad petals.

Amaryllis Ne Plus Ultra (Veitch).—A superb variety, the flowers $7\frac{1}{2}$ inches across, bright scarlet, the petals $3\frac{1}{2}$ inches in diameter.

Rhododendron Princess Beatrice (Veitch).—Very distinct, the flower pale creamy buff with a tinge of rose, 2 inches across and about ten in a head.

Cineraria Royal Standard (James).—Flowers $2\frac{1}{2}$ inches across, rich crimson, of wonderful substance, the florets recurved and broad.

Cineraria Pollie Charming (James).—Flowers $2\frac{3}{4}$ inches broad, very symmetrical, the florets warm rosy crimson with a white ring at the base.

Cineraria Challenger (James).—Intense violet-blue in colour, very large; the florets thick and of great substance.

Rose Grace Darling (Bennett).—A pedigree seedling Rose of good form, the petals imbricated, of a bright pink colour and very fragrant.

Azalea Mrs. Heaver (Todman).—A double white variety, the flowers $1\frac{1}{2}$ inch in diameter, the petals rather pointed, but neat in form and full.

SCIENTIFIC COMMITTEE.—*Introduction of French Mushroom Spawn*.—A communication was read from Rev. M. J. Berkeley on this subject, brought before the Committee at the last meeting, in which he observed on the great uncertainty in the development of Agarics generally, the mycelium sometimes lying dormant for a year and then springing up vigorously. Agaricus arvensis and Marasmius oreades thus failed to grow at Chiswick; spawn from the Swan River likewise failed, the reason being that it is impossible to guard against minute differences of atmospheric and cosmical conditions, the failure being due to no fault of the cultivator.

Coryneum Beyerinckii.—Mr. Plowright sent twigs, with illustrations, with gummy exudations, proved by Prof. Oudemans to be due to the fungus in Holland.

Canker.—He also sent specimens caused by Nectria ditissima on Hawthorn. The canker on Apple appears to be of a different cause, which did not appear to be capable of discovery.

Pellia epiphylla.—Mr. G. Murray exhibited a specimen of this plant growing with moss and species of Jungermannia, on which it had acquired an abnormal habit of growing erect.

Knot in Red Currant.—Dr. Masters showed a specimen received from Mr. Webster of Gordon Castle. It was suggested that it was due to Phytophthora, which has been thought to cause the black knot in the Birch. Mr. MacLachlan questioned this hypothesis; Miss Ormerod appears to think it due to it.

Cones of Abies Fortunei.—He also exhibited cones and foliage of this remarkable Fir, which is intermediate between Abies and Picea. It was grown at Patlanza (Lago Maggiore), but is a native of China. The cork is remarkable as being exceedingly light, and apparently without the thin layers (Periderm) so conspicuous in Pinus maritima.

Servian Spruce.—He also showed specimens of the cones and foliage of this tree, figured and described in the *Gardener's Chronicle* for March 1st.

Phalenopsis Stuartiana.—Mr. O'Brien exhibited a specimen in which every petal had produced a small ridge down the centre, indicating in a small degree the protuberance on the labellum.

Hyacinths Grown in the Dark.—Mr. A. H. Smee exhibited specimens of purple and red Hyacinths, planted last October and sunk in pits, but covered by drain pipes and buried in cocoa-nut matting. The leaves were of a pale green, but the colour scarcely paler than usual, showing the independence of colour upon light.

Monstrosities.—He also showed a two-spined Anthurium; a Lælia anceps with anomalous petals, partly misplaced, and with none at all; a seedling Cyclamen with contorted and misplaced petals.

Apples Preserved in Dried Sand.—Sir J. D. Hooker exhibited Apples of two kinds, Duke of Devonshire and Court Pendu Plat, received from the Earl of Ducie. Professor Church remarked that he had preserved Apples for two years in charcoal.

Prevention of the Potato Disease.—A communication from Mr. Plowright on this subject was read, in which were detailed experiments showing the advantages of high moulding and in bending the stems to one side, though this latter process should not be done in the latter half of July, as it lessened the weight of the produce if done when in flower or at a time when the foliage was in full vigour. To prevent "after-sickness"—that is, impregnation of the tubers during or after being raised, they should not be dug up till a week after the foliage is quite dead. The paper concluded with a description of a method of disinfecting seed tubers by heating them at a temperature from 100° to 120° F., which killed all mycelium and spores, but left the germinating powers of the Potatoes uninjured. It is proposed to carry out experiments on Mr. Jensen's system at the Royal Horticultural Society's Gardens at Chiswick.

Plants Exhibited.—Mr. Loder brought the following which were referred to him for identification, many of them being unnamed, from the garden of the late Rev. Harpur Crewe:—Fritillaria sp., Galanthus virens, Tulipa altaica (?), the earliest species to flower; a Narcissus sp., Ornithogalum sp., forming dense mass of flowers 10 inches across, Narcissus obvallaris, Anemone patens, grown from seed from Colarado, Crocus versicolor, a curious nearly colourless Iris with semi-scarious petals, Fritillaria tenella, Narcissus citrina, and a green-sepalled Ophrys.

Tulipa Kaufmanni, sent by Mr. Elwes; a new species from Turkestan, with light crimson petals in one specimen, the three inner ones were white, but yellowish at the base. Epidendrum rhizophorum was sent by Hon. and Rev. J. T. Boscawen with particulars of its growth, a species requiring the very brightest sun; also Azara micropbylla from the same exhibitor.

LECTURE.—The Rev. George Henslow first called attention to a basket of magnificent Violets sent by Mr. Wells, Fern Hill, Windsor Forest. He remarked upon the general infertility of the Violet until the summer, when it bore numerous inconspicuous buds which never opened, but were very prolific. They would be readily found under the foliage. Primroses.—He next remarked on the fine display by Mr. Waterer and Mr. Dean, the former gaining two first-class certificates. The latter gentlemen brought the first example of a hose-in-hose Primrose, this peculiarity being hitherto only in the Polyanthus. It is due to the calyx being converted into a corolla. Cinerarias came in for some remarks, especially upon the enormous size of their blossoms, some of Mr. Cannell's being nearly $3\frac{1}{2}$ inches in diameter. Mr. Veitch sent three species of Pinguicula, which the lecturer took for remarks on the insectivorous habits of plants, and observed that although

such plants are peculiarly constructed for the purpose, yet in every seed when it germinates the same process of digestion is carried out to enable the embryo to grow at the expense of the food held in reserve. A Hyacinth grown in the dark by Mr. Smee had its blossoms of proper purple tint, this being due, not to direct light, but to the reserve material stored up in the bulb. This, of course, depends upon the foliage, and the green colour of the last only upon the light. The lecturer noticed that alpine plants, such as Soldanella and Saxifraga oppositifolia exhibited, as also the deep blue Gentians of the Alps, appear to become more intense in colour the higher they grow. M. Best proved the same thing to occur the higher the latitude, and thence deduced the result that the foliage is enhanced by the longer amount of sunshine; and this, then, indirectly enhances the flowers. He lastly called attention to a new variety of Narcissus sent by Mr. Barr called pallida præcox, of a pale lemon colour.

NOTES FROM A SCOTTISH GARDEN.

PARSLEY.—The time when we make our annual sowing of Parsley has arrived, and I make a note of the means we take to insure an all-the-year-round supply of this everyday herb. I say "annual sowing," for I find one sowing made at this time is sufficient to meet wants which cannot be called small; but when the sowing is made, the whole of our system of cultivation has not been stated. The sowing is only for the purpose of providing plants which in May are transplanted from the seed bed to the selected ground they are to occupy. A damp day is invariably chosen to plant out Parsley, setting them a foot apart. Highly cultivated ground is necessary. The plants are small when dibbled out, and do not receive water at any time. A sufficient number to yield a winter supply is at the same time put out where they can be protected by frames in that season. It is also a very good plan to grow a score of plants in pots in very hard weather, shifting them into 8-inch pots. The Parsley we grow is from home-saved seed, and does not extend over a foot across, the leaves being very finely cut and curled. Those who have merely sown Parsley in beds and left the plants without further attention would be surprised to find how extraordinary is the improvement when treated as above noted.

LILY OF THE VALLEY.—A correspondent several weeks ago declaimed against the practice of flowering Lily of the Valley earlier than March. I am unfortunate in having had it continuously since November, and am therefore not in a position to appreciate the good qualities of that most charming flower when first seen so late in the forcing season as March. However, as the flowers have been deliciously fragrant, accompanied with ample foliage, I am, perhaps, not so much to be pitied. What I want to note here is in the way of helping those who would like a supply of flowers either early in the year or at Christmas, for now is the time to begin preparations. Bought clumps in flower or prepared home-grown clumps in the same condition, instead of being turned out of doors when they have flowered, should be kept in a temperature of 55° to 60° in order to insure the formation of flower spikes and foliage for the ensuing season. As the year grows older and the general weather warmer less artificial heat is necessary, but the plants are not safe out of doors until all danger of frost is past. During summer, and indeed until the plants are wanted for forcing, they do well out of doors; plunged, however, to save watering. An ordinary stove temperature is high enough to bring the flowers and foliage out, only they must be kept in the dark until the spikes have grown considerably. Our home-grown plants are much superior to imported roots.

AURICULAS.—Increase is one great aim of most Auricula growers, and at present numerous offsets will be severed from the parent plants and placed on an independent footing. It ought to be generally known that a little heat does these offsets no harm, while the little plants are established and become strong much quicker through being kept in a temperature of about 50° . I have only once tried to accelerate the opening of Auricula flowers by a slightly higher temperature. The immediate object was gained, but the after results were such as to stop forcing for the future. It may be noted that Auriculas require more water during the next six weeks or two months than they do at any time during the rest of the year. Over-dryness is a frequent cause of failure with amateurs. One result of this is sometimes an extensive development of woolly aphides, a pest I have seen got rid of by planting out the stock.

WALLFLOWERS.—We have had a few delicious deep crimson Wallflowers all through the winter, and now the spring is bringing out the flowers in abundance. I do not think it is an extravagant statement to say that many young gardeners would be puzzled to know when to sow Wallflowers for an early spring supply. Practically, it is hardly grown in private gardens, yet few flowers give greater pleasure. In our northern climate I find March is a good time to sow the seed, transplanting during

summer into borders, where the plants grow into good-sized bushes and flower. A few plants are well worth lifting in autumn to be grown in pots; I hope to have some next winter in full bloom. The fine old double orange and crimson-black Wallflowers I have not seen for several years. I should be very pleased indeed to hear of them again.

THE EAST LOTHIAN STOCK.—This is another common flower well worthy a place in a greenhouse during the winter months. The month of March is quite early enough to sow for this purpose, and the plants should be grown in pots from the first, those 8 inches in diameter being large enough to flower them in. Plants grown in borders do not lift well. There are six varieties grown, those most suitable for pots being the white, purple, and a true crimson variety raised a few years ago. Some gardeners like the Wallflower-leaved forms. The variety sold as "scarlet" is hardly worth growing, the colour being an undecided shade of rosy lilac.—X.

PROPAGATING MISTLETOE.

SEVERAL correspondents have written for information as to the methods of propagating Mistletoe, and in compliance with their requests we republish the following notes upon the subject which appeared in the Journal some years since:—

The two principal modes by which Mistletoe is increased are by grafting

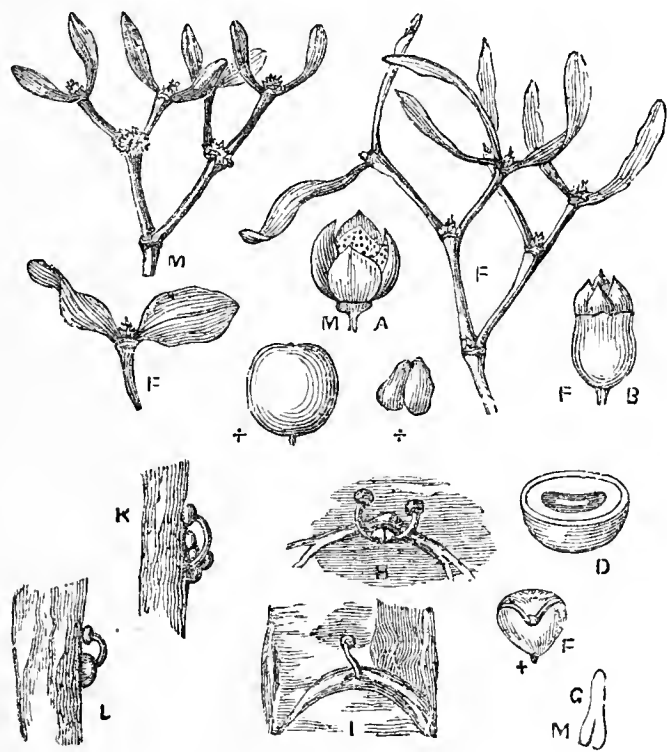


Fig. 46.

and seeds. The middle of May is the best time to graft the Mistletoe, and from then to midsummer. The best grafts are three-year-old shoots of the Apple tree, with a seedling Mistletoe on it already from the sowing of a thrush or blackbird, and the best way to graft it is to cut off all the leaves of the Apple-tree graft, and to leave at least four eyes, or buds, before the Mistletoe seedling, and only as much wood behind it as will be sufficient to make the union with the stock and no more; to have it done 5 feet high from the ground, to clay the graft in the usual way, to moss the clay, and to keep the moss damp, and to have the Mistletoe seedling just resting or nestling in the top of the ball of moss. Another most particular thing is to have one or more shoots left on the stock and above where it is grafted, and to let that shoot have all its leaves on. If the weather is very cold, or very hot, or windy, put a brown paper cape over the ball and Mistletoe, and nineteen out of a score of them ought to grow.

Grafting pieces of Mistletoe is like budding exactly, but make a longer and wider slit in the bark, and make the Mistletoe stem in a flat wedge-shape on one side, and put in the flat side next the wood of the stock, as in budding. Tie clay and moss, and cape with brown paper.

To bud Mistletoe is merely to take a less piece than the graft, only one joint of Mistletoe, "having a bud and one leaf at the end," but clay it and moss it, and paper-cape it as if it were a graft.

Now, in respect to sowing Mistletoe seeds in a slit made in the bark of the plant, or merely on the surface of the bark without the slit. Both ways are equally good, for it is not where the seed is placed that the Mistletoe seedling plant takes hold. A much more curious thing occurs at the germination of the seed of a Mistletoe. Sometimes there is only one germ in the Mistletoe seed; in others there are two, three, four, or more germs, and each germ throws up a sucker on the end of a short stalk. The sucker then lays hold of the bark of the tree, and holds on to it for six or eight, or more months, according to the time of the year; but it is from this sucker that roots penetrate the bark, and not from where the germination of the seed took place lower down. When there are more embryos than one in the one seed, there are as many seedlings from one seed as there are germs; for each germ, or embryo, has its own

branch and sucker, and each sucker takes an independent hold for itself, and on the place it holds to a seedling plant is established. I have seen three good plants thus from one seed, and each of them was half an inch in advance of the seed itself.

The seed of Mistletoe will vegetate on the bare handle of a house broom quite as readily as on the bark of an Apple-tree branch. If fastened with a bit of putty on a deal board, moss, and moisten it early in the summer, it will also vegetate on the board or on a bar of iron; then it dies, for the suckers at the end of the roots find not a proper place to fasten to.

The first indication of germination is the appearance of one or more radicles, like the sucker of a house fly, but larger; as at H I, which are front views, and at K L in the same figure, which are side views, taken from Mistletoe berries which were stuck on the upright trunk of a Cherry tree in March, and germinated there, as they appeared on the 20th May of the same year. When the white, viscous, pulpy matter of the Mistletoe berry is removed, the kernel or seed appears of a greenish colour, and flat; sometimes oval, or other times triangular, and at other times of various forms. A is the male blossom magnified; B, the female blossom magnified; D, a berry cut through transversely; E, a seed divided vertically, showing the two embryos; G, the embryo magnified; H, the two embryos, with the two radicles germinating; I, a single radicle; K, a side view, or section, of the two radicles; and L, a side view, or section, of the single radicle.

It is remarked by Du Hamel, that when the form of the seed is oval, generally one radicle only is protruded; but when it is triangular or irregular, two, three, or more appear. It is singular that, while the radicle of almost all other plants descends, this is not the case with the Mistletoe; the young root of which at first rises up, and then bends over till it reaches the body of the substance to which the seed has been attached, as at K and L. Having reached that substance, the point of the radicle swells out like the extremity of the sucker of a house fly, or according to the comparison of Du Hamel, like the mouth-piece of a hunting-horn.

GARDENS ABOUT BRISTOL.

HENBURY HILL.

THE garden connected with residence of E. A. George, Esq., has long been noted for the excellence of its various productions, Orchids in particular being at one time extensively grown; but the fine collection formed was a few years since broken up, and the houses are now filled with a miscellaneous collection of plants. The houses and kitchen garden, beyond which are the pleasure grounds and residence, are disposed near the brow of a rather abrupt southern declivity; and although the peculiar nature of the ground necessitates a rather peculiar arrangement of houses, the position would appear to favour good plant and fruit culture. Grapes, notably Black Hamburgh and Golden Champion, have long been well grown there. Both are grown on the extension system, and the latter confined to an inside border, and not hard-pruned, invariably perfects a heavy crop of fine bunches and but little spotted berries. The crop of Black Hamburgh was heavy and well finished, and other kinds of fruits are successfully cultivated.

The stove plants are principally such as are seen in the majority of good gardens in the neighbourhood, but the collection of Ferns includes one of the best specimens of *Adiantum farleyense* in the country. It is about 5 feet in diameter, is perfectly symmetrical, and the innumerable fronds are exceptionally large and healthy-looking. It is potted in good loamy soil, and when the roots fully occupy this liquid manure is occasionally given. Of the flowering plants the most noteworthy was the batch of handsome well-grown *Bouvardias*. They were planted out in a sunny sheltered position during the summer and early autumn months; and, being planted in fine soil in which leaf soil and sand abounded, they lifted readily with roots, a serious check thus being avoided. Such a batch of plants, placed during the winter months in an intermediate temperature, must prove of the greatest service, especially for furnishing cut blooms. A conservatory adjoins the residence, and this and the pleasure grounds were in perfect order.

Mr. Smith, the experienced gardener in charge, was the introducer of the extremely beautiful *Lavatera arborea variegata*, of which a good illustration was given in the *Journal of Horticulture*, June 7th, 1881. Mr. Smith does not consider it perfectly hardy; in fact it is best to lift a part or the whole of the stock of plants in the autumn and use them for the decoration of the conservatory and greenhouses during the winter. The seed of it, in common with other Mallows, germinates freely, and the variegation becomes more pronounced as the plants gain strength. The value of tuberous-rooted *Begonias* for summer bedding purposes has long been recognised by Mr. Smith, and he has succeeded in perfecting a strain superior, probably, to any in the hands of any other private grower. At any rate, I have not before seen such beautiful beds of *Begonias* in any private garden. The plants are very sturdy and even in growth, and were crowded with large well-formed flowers, at a time, too, when Zonal *Pelargoniums* were looking very shabby indeed. One bed was thinly filled with the *Begonias*, a groundwork being formed with *Mesembryanthemum cordifolium variegatum*, and this lovely mixture is to be commended both for effect and also for economy when *Begonias* may be scarce. It must be remembered that a poor dry soil, such as Zonal *Pelargoniums* will frequently succeed in, will not grow *Begonias* satisfactorily. They require a well-worked soil to which leaf soil or decomposed manure has been freely added. At Henbury Hill there is a remarkable collection of hardy Ferns as well as alpine plants, and these are most

picturesquely arranged, the peculiar habits of each species being studied in the arrangement. Another striking and very uncommon feature is a high wall exposed to the south entirely, and heavily covered with *Ceanothus azureus*. This always neat and ornamental drapery when in bloom can be seen at a great distance, and is the cause of much speculation to many passing horticulturists.—W. IGGULDEN.



KITCHEN GARDEN.

Spring Onions.—The main crop of these should be sown as soon as possible. The soil for their reception must be deeply dug and well manured. Sowing should only be done when the surface is dry and in good working order. Do not form beds, but sow in rows, which should be 1 foot apart and $1\frac{1}{2}$ inch deep. The seed should be sown thinly, and it is an advantage to cover it with a little sand or fine dry soil, then put on what was drawn out of the drills and tread firmly. When the surface is dry enough roll the whole piece, as nothing tends so much to produce finely shaped, small-necked bulbs as a firm soil. Of varieties the best to sow at present are Webb's Banbury, Sutton's Reading, Bedfordshire Champion, and James's Keeping. The two former attain a handsome size; the two latter, especially the last, are excellent keepers.

Parasnips.—The sowing of these should be finished at once. Where the soil is very shallow, and the long ones fork as a rule, sow the Turnip-rooted variety. It is very like a Turnip in shape, and is useful.

Peas.—Plants produced from seed sown under glass, and which are now being hardened under frames, should be transferred to their bearing quarters. In a favourable situation, and with care in hardening and planting, such crops may be had earlier than in any other way, but the utmost care is required to prevent their being checked. The roots must not be disturbed to any extent, and some dry soil from the sheds should be placed against them in planting. Stake at once and protect from cutting winds. Earth-up and stake Peas sown in the open some time ago. Marrows and main crop varieties generally may now be sown. Give them plenty of room and a rich soil. Of extra good varieties for sowing now we may name Carter's three splendid sorts—Telephone, Stratagem, and Pride of the Market; Duke of Albany, a new one of great merit; Telegraph, Giant Marrow, Champion of England, and Webb's Electric Light.

Broad Beans.—More of these may be sown. Aquadulce is a capital summer sort. Last year we had pods of it 16 inches long, and it is prolific and good. Do not sow this crop in the best part of the garden, as situation is not so important as a rich firm soil.

Celery.—Young plants must have plenty of light and air on all favourable occasions. Seed may be germinated in heat, but plants should be reared in ordinary frames. Those ready for transplanting should be placed into a frame with a gentle hotbed at the bottom and a rich soil over it, in which to dibble them. When not available we have substituted boxes for frames with good results. Sow a pinch of seed in gentle heat. Old Celery is now nearly over; clear the ground and prepare it for other crops.

Spinach.—Make a sowing of the round variety fortnightly now in large or small quantities, according to demand. We never give it a foremost place, but obtain all we require from between Raspberries, Gooseberries, and other crops.

Cauliflower, Savoy, Brussels Sprout, and Cabbage seed may be sown in quantity on a border to supply stock for transplanting in May. Lettuce may also be sown. Proceed with planting second early Potatoes. Keep the seed tubers of later varieties well spread out and exposed to the light. Make a new plantation of Horseradish; strong straight pieces should be dibbled into the ground in rows 3 feet apart and 1 foot from plant to plant. Seakale may be treated in the same way. Good soil should be provided for both. Where plantations of Seakale have become very old take up all the old stumps and only plant the crowns, cut off singly with a few inches of stem attached to each. All unoccupied ground should be manured and dug ready for cropping by this time. There will be much sowing and planting shortly.

FRUIT FORCING.

FIGS.—Early Trees in Pots.—The fruit having completed its first swelling, the most important matter is to pay strict daily attention to watering with diluted liquid manure a few degrees warmer than the house of which, if the pots are duly drained, the Fig at this stage will take great quantities without injury, but if they are allowed to want water—it may be but once—it is likely all the most forward fruit will fall just when they should be taking their last swelling. If the roots have passed through the top-dressing they may, if carrying a heavy crop, have large pieces of turf laid over the tops of the pots and extending to the bed of fermenting materials, into which they will root, and being fed judiciously the fruit will be much improved in size and quality. The day and night temperature need not be increased until the fruit begins to move, when a slight increase may be given, but in the meantime the foliage must be well syringed in the morning and afternoon of fine days,

damping the floors and walls, and close sufficiently early for the heat to rise to 80°. Great care must be given to the ventilation, particularly in bright weather succeeding a dull period, when early ventilation will be necessary in order that the tender young foliage may escape scorching. Keep a sharp look-out for red spider, and apply the usual remedies promptly. Pot young plants as soon as they require it, not allowing them to become much root-bound before doing so. Grow them in moist heat, and train to single stems.

SUCCESSION HOUSES.—Trees planted out will require regulating, tying as the growths proceed. Stop all side shoots at the fifth or sixth leaf, and lay in terminal shoots at full length until they have filled the allotted space. Syringe well twice a day, and damp all paths and borders at closing time; mulch and water the borders so as to encourage a sturdy growth, which is the most effectual means of keeping red spider in check.

PINES.—The winter season often makes the foliage of these plants somewhat tender and susceptible to injury from sudden outbursts of powerful sun, which are not infrequent at this time of year, hence great watchfulness must be exercised in the ventilation until the leaves become inured to the more powerful effects of the increased sunshine. Prompt attention must be given early in the morning to admitting a little air at the top of the houses, so as to dissipate the moisture before the sun is powerful. If the potting alluded to in our last calendar under this head be not already effected it must be attended to without delay. Attention must be given to the fermenting beds, because the heat rises very rapidly in them at this season, and the new young roots are soon injured by having too much heat. All plants should be examined at least once a week for watering, giving them thorough supplies of tepid liquid manure whenever they require it. Let the necessary attention be given to fruiting plants with superfluous suckers by screwing off the hearts of such as are not wanted, and afford to fruiting plants an abundance of moisture when the house is closed, in order to counteract the drying influence of artificial heat. Beds heated by hot-water pipes and shallow in depth sometimes become very dry, when a suitable occasion should be taken advantage of to give the plants and bed a good soaking with tepid water, which will produce a highly beneficial condition about the plants by increasing the supply of moisture.

Strawberries in Pots.—The plants are now pushing vigorously, but the earliest batches from the imperfect ripening of last autumn have thrown up leaves in advance of the flower trusses, the only remedy for which is a moderately warm temperature with a free admission of air. With the increase of light and heat the progress of succession plants will require attention so as to insure a steady supply. This is easily effected where Strawberries are grown in forced fruit houses in different stages or times of starting, and with a house specially devoted to swelling off the fruit there need not be any break in the succession, provided due regard be had to the difference of varieties with regard to the time of ripening. The blank most commonly occurs between early forced crops and later ones, if it should happen that a late variety succeeds an early one. Some endure forcing well and ripen quickly, as Vicomtesse Hericart de Thury, and La Grosse Sucrée, but other varieties must be brought on slowly, standing forcing after the fruit is set, but up to that stage make slow progress. If such varieties as Dr. Hogg, British Queen, Sir Charles Napier, and Cockscorn are to succeed early sorts, allowance must be made accordingly. These varieties, which are admirable for late work, should be brought on slowly in a good position near the glass, with plenty of air and abundance of water at the roots. The aphides generally appear with the flower trusses. These must be thoroughly disposed of by fumigation before the flowers open. Plants swelling off their fruit should have good supplies of tepid liquid manure two or three times a week, according to the condition of the plants and crop, and the plants should be looked over for water twice a day, and in very bright weather three times, as nothing hinders the swelling or encourages red spider so much as a deficiency of water at the roots.

PLANT HOUSES.

Shading.—The majority of the occupants of the stove that required potting will have been attended to by this time; and if the blinds are not already fixed upon the house, it should be done without further delay. The sun has now considerable power, and when shining in full force upon such plants as Marantas, Eucharis, Anthuriums, and others that have had the whole of the old soil removed from amongst their roots, will prove injurious. If not shaded their foliage will flag, and this, as far as possible, should be prevented if the plants are to commence root-action and establish themselves early. No air should be admitted through the ventilators into this structure until the plants are rooting freely. A close moist atmosphere and protection from the strong rays of the sun are the conditions under which the plants will rapidly become established and start into growth. The blinds should not be injudiciously applied, or the plants will grow weakly, and as the season advances they will be tender and incapable of bearing strong light.

The south side of the conservatory or any structure kept bright with flowering plants should also be provided with blinds, and in readiness for drawing down at any time when the sun is bright for an hour or two. Plants in full flower do not last in good condition nearly so long when the sun is allowed to shine with force upon them, neither do the flowers retain that freshness and brightness of colour which is so desirable. It is too early to apply permanent shading, and sooner than do this shading altogether for some time should be dispensed with.

The Orchid houses should be supplied with their blinds in readiness for the time when they are required. The blinds may now be drawn down daily on the south side of the Odontoglossum or cool house when the sun is bright, but on the other houses the shading need not be applied

for a week or two longer except where the *Phalænopses* are grown. When there is a good circulation of air in the cool house the atmosphere and the surroundings of the plants dry too quickly, under which conditions they will not thrive so well as when a cool uniform temperature can be maintained. The use of the blinds is the only means by which this can be accomplished.

THE BEE-KEEPER.

ABOUT LIGURIAN BEES.

LAST week I promised to adduce evidence in corroboration of my opinions on the value of Ligurian bees. I took advantage of a rather extended intimacy with bee-keepers to ascertain how others had fared, and was much surprised to find how completely my own opinion was borne out. I should mention that I only took into account those who had from three to five years' experience at least with Ligurians, as I consider it takes that time to find out all their failings. I need not dwell at great length on the result of my inquiries. One says, "We never knew what foul brood was here till a lady got some Ligurians from London, and it is quite a pest now." Another writes, "I have never had any satisfaction with my bees since I gave up keeping the old sort." A third says, "A friend and myself paid £8 for two stocks of Ligurians some years ago, and we have both spent many pounds on them since, but they never did us any good, and neither my friend nor myself would now take them as a gift;" and so on through the whole of my correspondence. I only had two out of about twenty replies to my inquiries who had a word to say in their favour. One of these "liked them because they were so pretty," and the other because they were so easily handled by ladies; neither, however, had ever obtained much surplus honey from them.

Of course, most of the opinions obtained were those of the ordinary run of bee-keepers, but I must give prominence to what I learned from two well-known apiarists whose judgment is of the utmost value in deciding the question. The first is a bee-keeper who dealt in Ligurians for some years, and stood by them as long as he could. At a personal interview, and in response to my inquiry, he told me "he found Ligurians so delicate there was no doing any good with them, and the longer he kept them the worse they got. The second is a gentleman who wrote favourably of Ligurians a few years ago both in the British and American journals. He is well known and highly esteemed as an authority on all matters pertaining to bee culture, and this is what he characteristically says now—"Italians are useless with me, they store no surplus, and are a nuisance as robbers and plunderers. I shall root out every skin of them from my apiary before the year is out."

Surely there is enough here to convince the most sceptical that something is radically wrong about these bees, that they are not suited to our climate, and, whatever they may do elsewhere, they fail here. Now if this is so, what can be more fatal to bee-keeping as a pursuit, both as it concerns bee-dealers and honey-producers, than to continue to perpetuate a constant source of mischief in pushing the sale of Ligurian bees? I have some valued friends in the trade who will, I hope, acquit me of any desire to injure their business; nevertheless, I confidently assert that they are doing harm to themselves as well as their customers by sending out bees which can only bring discredit on the vendors who recommend them. If it were not for the fact of bee-dealers being as a rule non-producers of honey, the failure of Ligurians as honey-gatherers would be as patent to them as it is to such of us as have tried them for honey only.

In conclusion, I would urge one or more of our prominent dealers to cast aside the reluctance to acknowledge the failure of Ligurians which seems to prevail among the trade, and cease selling foreign bees altogether. Let the plain truth be told about them, it's bound to come out before long; and if a good strain of the old black sort is cultivated, none but good queens being sent out, I venture to predict for the sellers an increased trade, yielding more satisfactory results to all concerned, while we shall inaugurate a new era in apiculture which will replace the present discouragement, largely attributable, I make bold to say, to the introduction of Ligurian bees.—W. B. C., *Higher Bebington, Cheshire*.

THE article from the pen of "W. B. C." on page 197 is precisely what I have been longing to see, but feared I never should. Anything that can stop the inundations of Ligurian queens is to be welcomed, but such a straightforward matter-of-fact "clincher" is beyond all price. The facts are what are wanted, and there they are. I hope everyone who does not want to see the blacks extinguished will do his utmost to prevent their extermination, which must be my excuse for troubling you with this.—H. V. EDWARDS.

TRADE CATALOGUES RECEIVED.

Samuel Shepperton, Prospect House, Belper.—*List of Florists' Flowers*.
Henry Bennett, Pedigree Rose Nursery, Shepperton, Middlesex.—*List of Pedigree Seedling Roses*.
R. B. Laird & Sons, 17, South Frederick Street, Edinburgh.—*List of Florists' Flowers*.
W. Hean, Quick & Co., Barnstaple.—*Catalogue of Clovers, Grasses, and Farm Seeds*.
Vilmorin-Andrieux & Cie, 4, Quai de la Mégisserie, Paris.—*Catalogue of Trees, Shrubs, and Palms*.



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (F. J. E.).—As an introductory work on chemistry you will find Roscoe's "Elementary Chemistry" (Macmillan & Co.), a useful work, and for more advanced study Johnston & Cameron's "Elements of Agricultural Chemistry and Geology" (W. Blackwood & Sons), is the most suitable. The "Handbook of British Plants," published at this office, price 3s. 6d., post free 3s. 8d., will enable you to determine wild flowers. The manual on the greenhouse, published at this office, price 9d., post free 10d., is the cheapest on the subject; the other work you name is also a good one. (*H. O., Bradford*).—The best works on Roses are those by Mr. W. Paul—namely, "The Rose Garden," 21s.; without plates, 10s. 6d. "Roses in Pots," 2s.; and "Roses and Rose Culture," 1s. (Kent & Co.), which gives all particulars respecting Roses indoors and out. "The Garden Manual," published at this office, price 1s. 6d., post free 1s. 9d., contains practical details of general garden work, and "The Greenhouse," price 9d., post free 10d., also at this office, deals with the culture of cool-house plants.

Seedling Conifers (E. P. C. B.).—The parcel has only just reached us as we are preparing for press. All the examples are good, some of them of marked excellence. For exhibiting we think they could be arranged and examined to greater advantage in boxes than planted out. If established in boxes they should be placed in them at once, and of course will need attention throughout the season. You would do well, however, to obtain the advice of the secretary on the details of exhibiting. The Asparagus seedlings are fairly good.

Hippeastrum reticulatum (Constant Subscriber).—Your plant is not a Lily, but an Amaryllis, and one of the most useful of the family, as, whether in bloom or not, it is attractive, its foliage alone rendering it an acquisition amongst stove plants. By repotting at once in good rough turfy peat and loam in equal proportions, adding a little charcoal, and growing the plants in a moist atmosphere till the end of August, and then withholding water so as to cause the foliage to shrivel a little, but not to turn yellow, they will bloom freely about October. The flowers are very handsome, and are sweet-scented. Do not overpot, but press the soil rather firmly and give abundance of drainage.

Leaf Soil (R. H. R.).—The decayed vegetable matter, of which you have sent a sample, as taken from a ditch, will be useful for mixing with heavy loam for general potting purposes, or at least that portion taken from near the top, as that taken from the bottom of the ditch may probably be sour. No portion of the sample sent is nearly fibrous enough for Orchids. Mixed to the extent of from one-third to one-half with loam that does not contain lime, adding also sand liberally, you would have a good compost for Camellias. The exact quantity of the leaf mould to use can only be determined by the character of the loam. It is much too light to be used alone for Camellias. It would be excellent for spreading in the drills when planting early Potatoes in heavy soil.

Wheat (J. M.).—Both the samples sent are of Wheat, No. 1 being inferior, No. 2 fairly good.

Cooking Potatoes (G. S.).—There is no wonder you have complaints of Potatoes being watery that are peeled at night and allowed to remain in water till the next day and then cooked, and we cannot understand how persons who enjoy good Potatoes should allow such an utterly unsound method of preparing them to continue.

Plants in Vineries (Idem).—Vineries can be rendered attractive by plants when suitable kinds are employed that endure shade in the summer; but to expect a house devoted to the culture of Lady Downe's Grapes to be kept as "gay as a conservatory all the year round without impairing the keeping properties of the Grapes" is unreasonable. At the same time there is no necessity for the Grapes to hang on the Vines "till March," as they can be cut in January and kept with their stems inserted in bottles of water in a

cool room. After Vines are pruned a house may be kept quite gay with bulbs in pots, Cinerarias, and a number of winter and spring flowers.

Primulas and Cinerarias (W. H.).—The Primulas are bright in colour, but there are many similarly bright in cultivation. The strain, however, is well worth preserving, and will eventually, perhaps, afford larger flowers. The Cinerarias are very inferior as compared with the best English-raised flowers.

Rabbits in Garden (A. E. T. T.).—Since dressing the plants and borders with soot fails to keep off the Rabbits, we regret that we are not acquainted with anything used in the same manner that will have the desired effect, but if any of our readers can name anything they may have found effectual we will readily publish it. With wire netting properly fixed and kept in order rabbits can be excluded from gardens.

Tobacco for Fumigating (W. C.).—Ordinary cut tobacco—that known as “shag,” is very good for this purpose; but much of the tobacco refuse sold is practically worthless, as it will not burn freely. Far more useful and economical is good tobacco paper. This varies in quality, also in price. If you procure a kind that does not suit you exactly, try some from another maker. In not a few cases when failure occurs it is more the fault of the operator than the material in his allowing insects to become so numerous that they can only be destroyed by fumigating so strongly as to injure the plants; but we do not suggest or think that you are one of those who err so seriously. The safest plan is to fumigate lightly to prevent the increase of insects, and it is also more economical than any other.

Cucumbers Dying (T. W.).—The fact that the Spiræas went off in the same manner as the Cucumbers would appear to indicate that the unfortunate result is due to fumigation or to something that has been used in the house for the extirpation of insects. The most strange part of the matter, however, is that your gardener cannot account for the collapse of the plants. Provided the pipes supply the requisite heat, then furring, if any, would have no such pernicious effect; and it is not conceivable that any gardener would allow such sharp currents of air nor such a degree of dryness in the house or the soil as to cause the destruction of the plants. Has he been the victim of circumstances over which he has no control?

Mushrooms in a Shed (Willing to Learn).—The shed will be well adapted for a Mushroom bed, provided you can maintain a temperature of 50° to 55° under the straw that you use as a covering; and this you may easily do by the time the manure is ready, if the bed is not too small. It should be 6 feet long and, if flat, 4 feet wide. If in the form of a ridge let this be 3 feet wide at the base and 3 feet high. There is no better place for preparing the manure than an open shed. The rather strong soil from under the surface of a pasture will be suitable. If you follow the instructions in the work intelligently you will succeed in your object, as many others have succeeded with no such means as you have at command.

Mixture for Shading Conservatory (Idem).—There are two distinct methods of shading—namely, portable in the form of roller blinds; and permanent by applying a mixture to the glass. We prefer the former, but the latter answers very well for large houses and various plants, such as Ferns, Palms, and Camellias. For flowering plants we employ light canvas blinds, and only use them when the sun is bright. The best mode of affixing the blind is undoubtedly, in our opinion, on a light iron framework a foot above the glass. The plants do not become “drawn” under such a shade nearly to the same extent as when the material rests on the roof; still with attention and judgment the latter plan answers very well. A very good wash for applying to the glass is made as follows:—Ingredients: 1 lb. of wheat flour, half pound of whiting, and 1 lb. of common candle or Russian tallow. Make the flour into a paste, and then put in the candles while the paste is hot, crush the whiting into a powder, mix with cold water, and then add to the paste, also adding as much Brunswick green as you need. When required for use warm it in a pail and paint the glass when the sun is shining upon it.

Fowls Trespassing (A Weekly Reader).—It is the duty of your neighbour who keeps fowls to “wire his garden off” to prevent them trespassing, and he can be compelled to do so, or adopt some other means of keeping them at home, unless he prefers paying for the damage they do. For this he is liable and actionable through the County Court. It is not incumbent on you to erect a barrier. You must not injure the fowls in any way, or you will be actionable. Give your neighbour a written notice that any damage his fowls do in your garden will be estimated by a competent gardener, such as the value of the crops that may be lost or depreciated, and for the amount so determined you will sue him through the County Court. On the claim being proved a just one it will be allowed, with any costs you may incur in connection with the case. That is your remedy.

Preserving Pollen of Aucubas (S. M. W.).—Several methods of preserving pollen have been successfully adopted, but the principal point is to keep it dry and cool. It should be carefully removed from the anthers and exposed for an hour or so, but not in the sun, and it can then be placed in a dry glass phial, which must be closely corked and kept in a cool position. Some have advocated placing the pollen upon the concave side of a watch glass, and on this another glass, the edges being secured with gum. If the plants are in pits they can be had in flower about the same time by placing one in moderate heat and the other in a cold shaded position.

Cattleya Trianae Variety (W. H., Leeds).—There are many light-coloured varieties of Cattleya Trianae, such as *delicata* and *nivea*, the latter being white and somewhat resembling your flower; we do not, however, remember one in which the lip is so white as in that you sent, as there is usually a tinge of colour in the centre. By all means preserve the plant, as it will afford a pretty contrast with the ordinary dark forms.

Growing and Preparing Tobacco for Fumigating (Cambridge).—The best kind for fumigating purposes is the common Tobacco plant, *Nicotiana tabacum virginicum*. *N. macrophylla gigantea*, *N. grandiflora purpurea*, *N. wigandoides*, and the variegated-leaved, are fine foliage plants for sub-tropical gardening, but we do not know what value they may possess for fumigating. The seeds should be sown in pots or pans of light rich soil early in April, placed in a hotbed, and the plants grown in gentle heat, having

them near the glass to keep them sturdy. Prick off the seedlings in pans or boxes, keeping them rather close and shaded until established, when they should be gradually hardened-off preparatory to planting out at the end of May. The plants require rich soil, and should be grown in rows about a yard apart, and a similar distance in the rows. During the period of growth the ground must be kept well hoed and stirred. As soon as the flowers begin to show colour break off the head of the plant and the small top leaves. This will induce in a short time the production of side shoots, which must be removed as soon as they appear, and the whole vigour of the plant will be directed towards the leaves. The leaves are to be gathered as they become yellow, tied together in small bunches, and hung up in some shady airy place to dry. After they have become thoroughly dried and crisp watch the first opportunity of a humid state of the atmosphere, which will cause them to become soft, and then pack them even in a box with the butts all one way, press them moderately, and a slight fermentation will shortly take place. All that is necessary is that a slight warmth be generated, then open it all, shake the bunches in the air to let off the heat, and repack it lightly. When all appearance of fermentation is over it may be stored as tightly as possible in a barrel and kept for use.

Raising Vines from Layers (H. S.).—In layering the cane of the Vine into pots to raise young canes from the eyes it is necessary to have the pots on a somewhat lower level than that of the base of the cane, otherwise the topmost eyes will break strongly and form strong canes, whilst those at the base will be weak, if, indeed, they break at all. We should rub off all the eyes not wished propagated, and one or two at the base to continue the growth of the parent plant, and when these have broken select the best, rubbing off the other. When the layered eyes have rooted well they should be detached from the parent, so that the latter may not be impoverished, as the strong growth in the layers is only had at the expense of the parent; which, if we understand you correctly, is wished to make a vigorous growth this season and become a permanent Vine. Remove the eyes of those you do require to layer with the point of a knife. The cause of the Vines from eyes growing so weakly is probably due to their not being grown in heat or not having liberal treatment, as it is no uncommon circumstance to grow Vines from eyes in a season as thick as a finger, and to carry 6 or 8 lbs. of ripe Grapes within eighteen months of inserting the eyes.

Heating Detached Vineries from One Boiler (A Novice).—There is no reason why you should not heat the whole of the four vineries from one boiler, provided the boiler can be fixed low enough to admit of the pipes connecting the detached vineries being taken under ground. The vineries are no doubt planted with different varieties of Grape Vines, so as to come in at different seasons; but you do not state this, and the proposed line or direction of pipes indicate your using the whole of the piping at once, having a similar heat in all, which would lead to the conclusion that the crops are wanted to come in simultaneously. Besides, if you have the “lean-to vinery at the south gable-end of dwelling” employed as an early house, and make use of the span-roof vinery as a late or even midseason house, you will have heat in the early house when it is not wanted, by being obliged to heat the water in the early house to obtain the requisite temperature in the span-roof house, the pipes in the latter being only extensions of those in the early house. Now, unless you want the whole of the houses heated at the same time the proposed mode of heating will not answer. The apparatus ought to be so contrived that each house can be heated separately or together, and that can readily be done by taking direct and separate flow and return pipes from the boiler to each house. The connecting pipes should be taken in a flue, and should be placed clear of the bottom, sides, and cover, so as to lose as little heat as possible; and it would be a still further advantage if they were covered with hair felting, so as to prevent the radiation of the heat from the pipes into the flue. The pipes may be taken through the houses as shown in your sketch, either in covered flues or covered with hairfelt so as not to affect the temperature of each house. Each set of pipes should have valves on both the flow and return, and as near the boiler as practicable. For connecting the houses with the boiler 1½-inch pipes answer very well, and they are preferably galvanised. The pipes within the houses for giving off heat should be 4-inch.

Training Vines to Upright Trellises (H. S.).—We do not think it would answer to train Vines to an upright trellis fixed across the house, as is sometimes done with Peach trees, for the Vines would be much in a position as those against a wall, the upper part so shading the lower by the over-hanging foliage; and though good results may be had from the upper part of the trellis, we fear the Vines on the lower portion would be so weak in growth as only to afford small bunches, if, indeed, they produced any. For a similar reason Vines do not succeed so well on the hack wall as when trained to a trellis 18 to 24 inches from the glass. We have, however, had very serviceable Grapes from a back wall, and also from Vines trained upright, but we did not compare the weight of the Grapes grown on that system with those trained to a trellis beneath the roof lights. It is solely a matter for experiment. If you adopt the upright trellises across the house they ought not to be less apart than 4 feet, and a double back-to-back trellis would not answer. About 1 lb. of Grapes per foot length of rod is a proper quantity for Vines to carry; but much depends on the condition of the Vines and the way they are treated as to feeding, &c. Peaches would succeed on the back wall of a vinery provided they are not too much shaded by the Vines; but if the Vines cover the roof the Peaches, though succeeding for two or three years, would for want of light thrive very indifferently.

Specimen Chrysanthemums (R. C.).—Mr. Hall of Brixton, the winner of several silver cups, and one of the best growers of specimen Chrysanthemums, wrote as follows in our columns five years ago, and he appears to have stated just what you want to know:—“The second week in March the plants will be about 6 inches in height and well established. I now take out the extreme point, which induce numerous side shoots to be thrown out—sometimes a dozen, according to the variety. I generally manage to have them potted into 6-inch pots by the middle of April; the side shoots or breaks are then about 5 or 6 inches long, and are pegged down towards the rim of the pot. Shortly after this the plants are removed to a cold frame, and plenty of air is given on all favourable occasions. At this time they grow very rapidly, and are again pinched and potted into 8-inch pots. I may here state that by taking out the extreme points of the shoots carefully I secure a larger number of strong breaks than by pinching back in a rough manner. If the

plants are allowed to have a check at this stage of their growth, either by hard pinching, allowing them to become dry, or placing them in cold draughts, they will eventually present the grower with a number of deformed flowers, besides losing a part of their foliage. I pot my plants for the last time from 8-inch to 11½-inch pots the first week in June, about which time they are pinched for the last time. This stopping will give from forty to sixty breaks, a number which will be found quite sufficient to form a first-class specimen. After being potted into their flowering pots they are taken to their summer quarters; a piece of open ground is provided in the full sun, but sheltered on all sides from wind. I place them on the surface of the ground, and surround each pot with ashes up to the rim. I let them grow on after this in their own wild way without any training whatever, giving them every day unlimited supplies of water, adding a little clear soot water two or three times a week. I find during hot weather that the plants cannot have too much water provided the drainage is clear. The foliage will also be improved by a watering overhead late every evening. Staking the plants is a very important operation, which requires care, taste, and patience. I usually commence tying the first week in October. I will, as briefly as possible, try to describe the way I proceed. The most convenient way is to place the plants on a handbarrow, being careful to have it level. But before tying I give a good dusting of flowers of sulphur underneath the foliage, which can be easily done by turning the plant on its side; this is to prevent mildew. The first stick placed in the centre of the plant must be upright. The sticks I use are about 2 feet long. I now take a shoot and tie it as low down this stick as I can without breaking—a little twisting is sometimes necessary—so that the bud comes directly on the top of the stick. Five sticks are now placed around this central stick in a circle, and they will be found to be about equal distance from the centre stick and from each other. The after-part is a mere repetition, except the outside circle, and these shoots are brought down to the rim of the pot and then tied straight up the stick. I allow my plants to stand outside as long as the weather is at all open, and several of the early varieties only have the protection of an open shed on wet days and cold nights. The plants will grow considerably after this, and the buds will soon be several inches above the sticks; these must be drawn down, carefully working the ties down at the same time until the bud reaches its original position, making a notch above each tie to prevent pushing up again. This mode of culture has led to considerable success both at metropolitan and suburban exhibitions." You will see by the above that the final tying is deferred long after the last potting. Some persons affix sticks across the pots, allowing the ends to extend as far as is desired, and to that is secured a circle of stout wire, to which the branches are secured. This is the method adopted in forming the heads of standard plants, which are not topped until they reach the intended height of the stem. The prices to which you refer are not the purchasing but the selling prices.

Names of Plants (C. D.).—1, *Eriostemon scabrum*; 2, *Hedera fuchsoides*; 3, *Boronia pinnata*; 4, *Boronia megastigma*. (*Salto*).—1, *Polypodium aureum*; 2, *Begonia maculata*; 3, *Begonia marga*. (*Reader*).—1, *Begonia nigricans*; 2, *B. metallica*; 3, *Daphne Laureola*. (*G. A. M.*).—1, *Withered*; 2, *A small Cypripedium Boxallii*; 3, *Libonia floribunda*; 4, *Maxillaria porphyrostele*.

COVENT GARDEN MARKET.—MARCH 12TH.

MARKET keeps quiet, and with Lent prices will suffer. Vegetables in good supply. First-class Apples in demand, common sorts heavy.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	5 0	Nectarines dozen	0 0	0 0
" per barrel	0 0	0 0	Oranges 100	6 0	10 0
Apricots box	0 0	0 0	Peaches dozen	0 0	0 0
Chestnuts bushel	10 0	0 0	Pears, kitchen dozen	1 0	1 6
Figs dozen	0 0	0 0	" dessert dozen	1 0	5 0
Filberts lb.	0 0	0 0	Pine Apples English .. lb.	2 0	3 0
Cobs per lb.	1 3	1 6	Plums and Damsons ..	0 0	0 0
Grapes lb.	5 0	10 0	Strawberries oz.	0 0	1 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	8 0

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	4 0	Mushrooms punnet	1 0	1 6
Beans, Kidney 100	2 6	0 0	Mustard and Cress .. punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 3
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	1 6	2 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney cwt.	4 0	5 0
Carrots bunch	0 3	0 4	Rhubarb bundle	0 4	0 0
Cauliflowers dozen	2 0	3 0	Salsafy bundle	1 0	0 0
Celery bundle	1 6	2 0	Scorzonera bundle	1 6	0 0
Coleworts doz. bunches	2 0	4 0	Seakale basket	1 0	1 6
Cucumbers each	1 0	1 6	Shallots lb.	0 3	0 0
Endive dozen	1 0	2 0	Spinach bushel	2 6	3 6
Herbs bunch	0 2	0 0	Tomatoes lb.	2 0	2 6
Leeks bunch	0 3	0 4	Turnips bunch	0 3	0 0
Lettuce dozen	1 0	1 6			

idea that corn would not pay for growing upon flat-lying strong land, which may or may not be true, according to varying circumstances over which the farmers have little or no control. One thing, however, may be taken as correct, that under the influence of a great mistake in the selection of seeds for the purpose of laying down land for permanent pasture, that an area corresponding with the popular idea entertained not only by the farmers, but the seedsmen also, has proved more or less a failure on all soils. As soon as the seeds of annuals and biennials sown in connection with the permanent grass seeds died away and left the land more or less bare, it induced the consequent belief that nothing but time and the waiting for Clovers and Grass indigenous to the soil to spring up could be done to repair the mischief, which has since been proved by all practical men to have been done by the mistakes referred to, of having seeded the land with Rye Grasses, none of which has proved permanent. In the consideration of reseeded we are confronted by the fact that variation in soils must have its effect upon the selection, as much as it has influenced us in recommending various seeds under the heading of "Seeds for Permanent Pasture on Different Soils." But again, there must, if a judicious selection is made, be some notice taken of those Grasses which are left, and which may fairly induce us to add more or less of other Grasses adapted for the soil. Still, on the other hand, we may consider the value of those sorts which have survived, and the non-value of those which have died out, yet we can hardly go so far as to say that the remaining plants are actually the survival of the fittest unless we knew the actual combination of seeds sown in the first instance.

We must now notice other causes of the infertility of portions of pastures under various circumstances, such as the growth and prevalence of inferior Grasses and weeds. Upon strong land we noticed that the Blue Carnation Grass (*Carex*) is prevalent. This at once denotes poverty, and that the deficiency is caused by the land being too poor to maintain the better Grasses, although some of them may have previously existed as indigenous to the soil, yet could not be retained without sufficient condition being present in the soil. This we have noticed as the frequent result of dairy cattle feeding without getting any cake, &c., in their rations of fodder, and at the same time the pasture not being cared for by manuring sufficiently to sustain the better Grasses. Again, there is another serious obstacle to production on park and pasture lands—viz., the growth of moss, which, although it seems frequently of a very dwarf habit of growth, yet it only shows that this moss is neither more nor less than the last effort of nature to clothe the land when it is so wanting in fertility that the superior herbage required for profitable production has entirely died out, arising from the cause we have before assigned—that of neglect.

Next we must consider the practical point of preparing the land for the reception of those seeds we may deem desirable for renovating, or whether we should dive deeper into expenses by breaking-up such inferior pasture and cultivating for saleable crops during three or four years, adding sufficient manure and chalk as may be required to make it productive when seeded with permanent pasture Grass seeds, and after being cultivated we may sometimes discover that portions of the field cannot be profitably treated without being drained. This is rather enlarging upon our subject, but the consideration of these points before seeding the land is only a practical and carefully devised matter to prevent future failures in the outlay for procuring good pasturage. We have often seen it noticed that the fact of moss being found on the land shows that it requires draining; but this may or may not be the case, for we can only say that except in the case of actual peat bogs it is really, as we have stated, caused by the absence of fertility in the land, whether it requires draining or not. We have found it existing on the driest soils as well as on the cold flat-lying clay lands, which would probably pay best for being drained before we could expect a superior turf for permanent pasture.

Let us now consider the best time of year for sowing the Grass seeds for renovating, preparing the land for reception of the seed, and also the sorts and quantity of manures per acre, and the time and manner of their application. Some farmers advocate the seeding to renovate defective pastures should be done just after a crop of hay has been removed. We, however, prefer to sow the seeds in the month of March, in order that the young plants may obtain a firm rooting before the winter begins. It is also found that in March we are pretty sure to find moisture enough to vegetate all the seeds which are sowed. Before sowing, however, the land should be first dragged with heavy iron drags two or three times, according to the state of the soil on the surface. If hard the more work should be done. It is also important as to whether the surface is clean or foul with moss or Couch. If by either of them, and there are no old Grass plants worth saving, the land may be scarified instead of dragged, and the Couch got together and carted away. When the land is clean and has been dragged the manure may be sown and harrowed in. The quantity of manure may vary, according to



SEEDS FOR RENOVATING PASTURES ON VARIOUS SOILS.

LARGE tracts of land during the past seven years have been laid into pasture under the influence of depression in agriculture, and the

the condition of the land, from 3 to 4 cwt. of bone superphosphate, and 2 to 2½ cwt. of nitrate of soda or Peruvian guano per acre. Nitrate if it is on light soil, guano if on heavy or loamy soil. After being worked-in by two tines of the harrows the land may then be rolled with the Cambridge ring roller. In that condition it may be seeded, as the grooves formed by the rings of the roller will be the means by which the seed may be buried, especially if the land is free-working and only a single tine of the chain harrow is given, for if several tines are given many seeds will appear on the surface. This work will not have destroyed any old plants which it may be desirable to save, except in case of the scarifier having been used.

The after management during the summer is a matter of extreme importance, and to justify our proposal of the management it must be remembered that on the surface the land not having been disturbed much we do not expect many weeds to appear, as they would on a regular fallow surface, therefore we advise that the young plants, together with any old ones which may have escaped during the working and seeding, should be allowed to grow up together until there is food enough to turn in some young store cattle. Care should be taken not to allow any sheep to feed on the land until the second year after seeding, nor should the young cattle be allowed to feed until the Grasses are strong, and the longer it is deferred the better until the Grasses will be rooted firmly enough to prevent their being pulled up. The feeding should not be long continued, only sufficient to pull off the tallest blades of Grasses. In some cases it may even be advisable to run the mowing machine over and take off any weeds and all Grasses which may have run up, and then leave the young Grass until necessity compels the feeding by young cattle, but dairy cows will sometimes be too strong and heavy treading for young seeds. If the land is very poor when the manure which is to be applied, 15 or 20 bushels of damp ashes should be mixed with the manures, which will prevent their flying before the wind at sowing time, and also tend to the more regular distribution of the manure. Still, in the next year, if the seeds do not appear strong, they should again be manured with a similar mixture of manures, or a mixture of earthy composts and dung, but more especially may this be necessary in the case of pastures having been overrun with moss, for except in those cases where the pasture has been recently made and the deficiencies have occurred through some of the plants having died out, we may be quite sure that the necessity for renovating has been caused by the land being too poor for producing the Grasses indigenous to the soil.

With regard to the seeds to be sown to renovate pastures which have failed to maintain a plant of Grass sufficient to make a turf, we must of course take notice of the soil to be seeded, as we have done in the seeding for certain soils, which have been fully described in the back numbers of this Journal dated February 21st, 28th, and March 6th of this year under the heading of "Seeds for Laying Down Land to Permanent Pasture;" and in order to simplify this matter, let the seeds as there named, both in sorts and quantities per acre, be sown in half quantities of those stated where there may be formed a partial or half a plant of the old or formerly seeded and survived plants. In case of those pastures which have been entirely cultivated on the surface to destroy moss or Couch, then we of course recommend for renovating the pasture so far as it is required by the entire loss and vacancy of the original turf, that the whole of the mixtures and quantities of each Grass seeds should be used, just as if we were laying down for a permanent pasture on a fallow in the first instance. On reference to the Journals of the dates above mentioned, the home farmer will find that we have with great care and caution endeavoured to adapt the seeds to the soils and purposes for which the pasture may be required, for where ornamental turf is partially required, as in parklands, the coarsest and most objectionable varieties for this purpose are omitted.

WORK ON THE HOME FARM.

Horse Labour.—This work is now very forward upon farms in general; for although the winter has been mild and stormy, yet generally speaking the rains have not been so continuous as in some former mild winters, and the drying intervals have proved the farmer's opportunity for forwarding the general work; although it must be admitted that intervals have not been obtained suitable for the drawing out heavy compost manures on the pastures. Whenever the manuring of Clovers or pastures could not be effected by carting on them and spreading earthy compost or well-decayed farmyard dung, now is the time for the application of artificial or hand-applied manures, and the best manures in mixture for either purpose will be found, if genuine, to be 2 cwt. of bone superphosphate and 1½ cwt. of nitrate of soda per acre. The late fine weather has induced us to thresh one rick of Wheat and one rick of white Victoria Oats, the yield not being so great as in the previous year. We take great care in ricking and thatching the straw, especially of these white Oats, for this is in great request for cutting into chaff, mixed with hay, by cab owners and omnibus proprietors in towns; and there is no doubt that it is of more value as fodder than either Barley or Wheat straw. The drilling of Oats, Peas and Beans has been in progress at every fine interval, and should be continued until finished; because if

delayed it may put off and delay the necessary tillage for Mangolds and other roots. Now is the time to prepare a border or headland for the seeding with Cabbage or Broccoli in districts where there is a sale for them, for we allude not to Broccoli to stand the winter and be sold in the spring months, for this delays the season for other crops which may succeed, but we mean autumn Giant Cauliflower, which will come off the land early enough to be sown with Wheat when the land is in high condition through liberal manuring. Bone superphosphate 4 cwt. per acre, and guano 4 cwt. on loamy land, but 2½ cwt. of nitrate of soda upon light soils per acre, we find are mixtures when used for either Potato, Cabbage, or Broccoli growing will prove better than any other kind of yard dung, town dung, or night soil. The last-named is, however, specially objectionable for Broccoli, for it is greatly complained of, proving very offensive after cooking when the roots are grown from night soil; it is, however, no matter for cattle, Cabbages, and Mangolds, and is no doubt the most powerful agent in producing luxuriant growth, which we have, except well apportioned mixtures of bone phosphates, guano, or nitrate of soda.

Hand Labour.—Trenching in the meadows should now be completed, and the regulation of the flood waters in irrigated meadows must be properly regulated, for in four weeks time the sheep on the hill farms will require the early food which they produce. Elm and Ash timber has been cut lately to a considerable extent, but it is now too late to continue this work. The cutting of underwood in the coppices should also be finished about this time, and also in the hedgerows where the materials are grown for making into hurdles and spar-wood. The men will now be required to finish the hedge-trimming, as some farmers reserve this work until the sap rises in the wood, as it cuts so much casier, and the hedges may be made more shapeable objects in consequence. At all fine intervals both men and women will be required in the fields planting Potatoes, and also forking out Couch before the sheep on the late Swede crops, so that when the land has been seeded in the Lent corn the Clovers may be found clean, and therefore preventing the farmers' pest from increasing, as every practical farmer is obliged to admit that forking-out Couch is not only the surest way of getting rid of it, but also the cheapest, just as hand labour in this matter is everywhere, when well directed, cheaper than horse labour.

Live Stock.—On account of the mildness of the winter both cattle and sheep have fared well in many pasture districts. The ewes of late lambing breeds, like the Downs and long-wools, have yeanned a healthy lot of lambs with more than an average number of twins. Now, to our mind, the fattening of young sucking lambs is more important at present than any other method of sheep feeding, for the simple reason that not only are they yielding the quickest return for both food and labour, but they go to market and are sold without meeting with any foreign competition. This cannot be said of scarcely any other kind of stock fed by the farmer, and we think this point is frequently not only lost sight of, but in consequence not turned to the good account which it may be. Dairy cows are now calving fast in the dairy districts where cheese-making is practised, and also in the butter-making dairies it is the popular period, if we may so term it, for the cows to calve; in fact, we may go farther and say that it is a prejudice in the minds of farmers that the cows should calve in the spring, which goes far to account for the circumstance that fresh butter is cheaper in the summer, and scarcely to be obtained at all in the winter months. This is a matter serious enough in the farmers' interest, and ought to make him think upon this matter, in order to turn his milk and cream production into a more profitable and better regulated supply, with benefit to himself and the consumer also, especially as in the future there is every prospect of ensilage being one of the great factors in butter-making during the winter months for all cows which may calve in October or November. The root crops are holding out well for the sheep, and it is a question to be considered whether a portion of them should not be removed and stored for use, or used immediately for the fattening bullocks, so that the Lent corn crops to follow may be sown at an earlier date.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.						Rain
1884. March.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.				
			Dry.	Wet.			Max.	Min.	In sun.	On grass.			
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.			
Sunday	2	30.084	37.8	35.7	N.	38.0	44.7	31.9	74.4	27.6	—		
Monday	3	29.948	37.8	35.5	S.	38.0	42.8	28.8	42.7	23.2	0.335		
Tuesday	4	29.672	45.5	44.8	S.E.	39.2	52.3	36.3	55.4	35.7	0.050		
Wednesday ..	5	30.097	41.4	39.3	S.W.	40.4	52.4	36.5	87.0	33.2	—		
Thursday	6	30.246	38.1	37.5	Calm.	40.0	52.5	32.3	81.4	30.3	—		
Friday	7	29.987	37.1	37.1	Calm.	40.3	49.7	33.3	67.5	29.3	—		
Saturday	8	29.831	39.4	38.8	N.	40.1	49.2	34.3	61.1	31.0	0.209		
		29.981	39.6	38.4		39.4	49.1	33.3	71	30.0	0.594		

REMARKS.

2nd.—Fine and bright throughout.
3rd.—Cold small rain began at 10 A.M.; it continued nearly all day, but became warmer in evening.
4th.—Wet morning, fine after, and windy in evening.
5th.—Very bright all day, with hot sun.
6th.—Fair early, and fine after 11 A.M.
7th.—Fog early, then fine all day.
8th.—Fine in morning (with some fog); slight rain after 3 P.M.; fine evening. (Heavy rain in early morning of 9th.)
Temperature near the average, and slight frosts on several nights.—G. J. YMONS.]



COMING EVENTS

20	TH	
21	F	
22	S	
23	SUN	4TH IN LENT.
24	M	
25	TU	Royal Horticultural Society. (Fruit and Floral Committees at 11 A.M.)
26	W	Royal Botanic Society. Spring Show.

PLANTS FROM SEED FOR CUT FLOWERS.

IT is notable that plants raised from seed are freer in growth and more floriferous than those raised from cuttings or layers—that they are for general decorative purposes and cutting from greatly superior to the florists' varieties, and except for particular purposes and to meet some standard ideas are in every way preferable for general acceptance. It is not intended to convey an impression that seedlings are equal in beauty of form and other properties to be found in a flower as it meets a florists' idea of quality, but it must be admitted that the plants raised from seed carefully selected from superior flowers afford very different results, and much better than were obtainable a few years ago. Nine out of every ten persons only value flowers for their effectiveness in the garden and their usefulness for the ornamentation of the house. The florist may look at the variety of colour and form presented by the mixed border, and yet pass the flowers as beneath his notice from a "florist's point of view;" yet those who want flowers, whether on the plant for effect or in a cut state to provide a chaste, elegant, graceful, and pleasing arrangement, must look for them in the mixed border. No one knows this better than florists, and it is to their care and skill that we owe the vastly improved forms of flowers that are now raised from seed, many of which very closely approach the florist's standard of excellence. This is only what might be anticipated, for it is practically impossible for a true lover of flowers to keep from improving whatever he takes in hand. Be this as it may, several years' experience enables me to say as much enjoyment can be had for the expenditure involved in purchasing a packet of seed as from a considerably larger amount invested in plants, dozens of plants being had for the money that is often necessary to purchase one example of a named variety, while the seedlings give a more pleasing and useful display of flowers. I do not wish for a moment to disparage named varieties, as they are or have been seedlings that have been continued by propagation other than by seed, because they gave excellence in advance of the majority of the seedlings; yet so great has been the advance in seed-saving and the efforts to improve the strains of flowers, that seedlings as now obtained exhibit a decided improvement and fixedness of character that was looked for in vain a few years ago. Indeed, so fixed have some of the forms become that our principal seedsmen are able to offer distinct varieties of several kinds as coming true from seed.

There is another important point in raising plants from seed—viz., greater facility for effecting the desired object. There is no need to winter plants, as the seed is much more easily kept over the winter, and if the plants are biennial or perennial they stand outdoors, where the choicer sorts must have frame protection. Seedlings are less trouble in propagation, require less care afterwards, and if the strain be good the display of flowers is always satisfactory. The subject would be best treated under two heads—

1, Annuals, including such biennials or perennials as flower freely the first year; 2, Those which under ordinary treatment do not flower freely, or only late in the season under special treatment the first year, and need to be treated as biennials. I must, however, point out that most plants raised from seed are with some exceptions, which will be noted as we proceed, of very little use after their flowering is over, and should be destroyed.

SINGLE DAHLIAS.—These are quite unique for cutting purposes, and are probably the most beautiful of border plants. If the seed be sown in March in a hotbed, and the plants kept near the glass, potted off singly when they are showing the second leaves, and grown on in frames or in a greenhouse after they become established after potting, good plants will be had by the end of May, and when put out they will bloom well until early August and until frost comes. The seed may be had in separate varieties, but it does not do to place implicit reliance on them, as they may come true, but sometimes do not. The most fixed appear to be Paragon, Cervantesi, Harlequin, Sunset, White Queen, and Yellow Gem. The mixed packets give a great number of colours. The plants make an excellent back row to a border, and for large beds are beautiful.

CORNFLOWER (*Centaurea cyanus major*).—There are several varieties of this, but the blue is far the best. Everybody knows it, and yet it is not so much grown as it ought to be. The seed should be sown early in April in the open border in patches for a mixed border about a foot across and 2 feet apart, thinning the plants so as to leave half a dozen of the strongest in each patch. It will grow 3 feet high and forms a good row next to the single Dahlias, its blue tint contrasting well with their shades of red, white, and yellow. The plants are all the better for being secured to stakes, but must not be "bundled" or the plants will be spoiled if a wet time sets in. To have early flowers sow in September in a warm sheltered spot and transplant in spring.

SINGLE CHRYSANTHEMUMS.—These are showy and effective, blooming profusely and continuously until frost. The flowers exhibit a great range of colours, and are 2 to 3 inches across, circular in outline, and good in substance. The seed should be sown in patches like the Cornflowers, as they then make fine clumps, and for cutting are unequalled. They grow 2½ to 3 feet in height. The seed should be sown early in April where the plants are to remain. The following are the best:—*C. segetum*, bright yellow; *C. leucanthemum*, white, yellow centre; and the varieties of *C. tricolor*—viz., *luteum*; Lord Beaconsfield, crimson edged gold, dwarf; W. E. Gladstone, crimson; The Sultan, crimson-maroon; *atro-coccineum*, scarlet; *venustum*, crimson and white; *carinatum* or *tricolor*, white and yellow; and *Burridgeanum*, white, crimson, and yellow. These make a grand display and bear examination in any position. They are also useful when grown in pots.

ZINNIAS.—The single and double-flowered varieties are very bright in colour in various shades of scarlet, crimson, red, and white, and are effective either as border plants or the flowers for cutting. They grow 2 to 2½ feet high.

ASTERS.—Truffaut's Perfection *Pæony*-flowered in twelve distinct colours, Victoria in twelve distinct colours, Rose-flowered in ten distinct varieties, and Read's Quilled Improved (Betteridge) in sixteen distinct colours, are beautiful plants when well grown. The first three grow 1½ to 2 feet in height, and the last to 2½ to 3 feet in rich soil. The prevailing colours are purple or blue shades, rose, carmine, crimson, and white, or a combination of two colours, such as blue and white, crimson and white.

DWARF SCABIOUS.—These attain a height of about 2 feet, and are white, blush, rose, up to deep velvety crimson. They are very free-flowering, forming much-branched plants, and continue in bloom up to frost. The flowers are very effective and are fine for cutting, having long stems, and are sweetly scented.

FRENCH MARIGOLD.—Seedsmen have selected strains of

those that may be relied on for producing flowers bright in colour and very effective; the scent is far less strong than many flowers that are esteemed for their powerful odour. They grow to a height of 2 to 2½ feet.

The Zinnias, Asters, Scabious, and Marigolds form good third-row plants, and should be planted about 18 inches apart, or five in a patch about a foot across, with 2 feet spaces between.

STOCKS.—The large-flowering German, scarlet, purple, and white are the best; the large-flowering German Victoria, scarlet, being very fine. There are many other shades of colour, but these are the most useful. They grow about 18 inches high, and are useful for cutting, being much prized for their delightful fragrance.

PHLOX DRUMMONDI.—There are twelve distinctly coloured varieties of this plant, the prevailing shades being white, deep scarlet or crimson, purple, white and crimson, rose, and striped or splashed in various shades. The large-flowered or grandiflora section are the best. They are about 18 inches high.

Dianthus chinensis of varied shades of colour are very beautiful and useful for cutting. They grow about 18 inches high, and form with the Phlox an admirable fourth row at 18 inches distance apart.

All those named from Zinnia down to Dianthus are half-hardy, and the seed should be sown in a frame early in April, and if on a hotbed 18 inches to 2 feet high of sweetened leaves and litter, it will be an advantage, but the heat is not absolutely necessary. The frame should be stood in a warm situation on a bed of ashes, and 6 inches of rich light soil placed in it, and, if at all dry, it must be brought into a good moist condition before sowing the seed. Sow in drills about 3 inches apart, varying the depth to suit the different sizes of seed, in all cases covering them about the same depth as the diameter of the seeds. Keep the frame closed until the seedlings appear, shading from bright sun to prevent the soil drying, but avoid too frequent waterings, as all that is necessary is to keep the soil moist. When the plants appear admit air freely if the weather is bright or mild, and cover with mats at night as a safeguard against frost. The plants must be kept in a growing state by watering as necessary, avoiding a very moist soil or moist close atmosphere, which has a tendency to make the plants soft, and some will then damp off, particularly Stocks. After the seedlings show the second leaves they may be damped through a fine rose, closing the frame early, and they will grow quickly and strongly. After the middle of May the lights may be withdrawn on mild fine days, and by the close of that month they may be planted out, or soon after, as a showery time determine. This method is far better than sowing seed in pans, pricking off the seedlings and growing them on in heat; but it is necessary that the seed be sown rather thinly, so as to obviate the necessity for pricking off.

SWEET SULTAN.—These are more useful than showy, being fine for cutting, as the flowers have long stalks and are sweet-scented. They grow 2 to 2½ feet high, and should be sown early in April, where they are to remain in patches about 1 foot across and 2 feet between, thinning out to about half a dozen in a batch. They make capital second-row plants with the Cornflower and Chrysanthemum, next to the single Dahlias. For early summer blooming sow in early September.

ESCHSCHOLTZIA.—*E. californica*, *E. crocea*, *E. crocea alba*, *E. crocea flore-pleno*, *E. carminea*, *E. rosea*, and *E. Mandarin* are fine for cutting, being very showy if only when the buds are opening, flowering until frost is experienced. Sow seed in patches early in April.

VERBENA HYBRIDA.—Sow seed in pans in March or early April, place in a hotbed, and grow the plants in gentle warmth, pricking off when large enough, and harden off for planting out about 18 inches apart at the close of May or early in June. These with the Eschscholtzias make good fifth-row plants, or the one next the edge or path but one, and if the

flowers do not equal the named varieties they give very fine trusses, and are useful for cutting.

MIGNONETTE.—Of this we have many varieties. Dwarf Erect, with stout spikes and red flowers; Golden Queen, Crimson King, Garaway's White, Miles' Spiral, and Queen Victoria. Sow in the same line as the Eschscholtzias and Verbenas in early April, and thin well out, as the finest spikes are only borne by the sturdiest plants.

PANSY.—The large-flowered English, large-flowered Fancy or Belgian, and large-flowered German Pansies, should be sown similarly to half-hardy annuals, and planted out when fit as a front row or edging, mixing them, and about a foot from the edge. These will please everybody, and the German variety is sweet-scented.

In these notes I have had in view a border which from July to late autumn produced an unrivalled display, and at the same time afforded cartloads of flowers. They are popular, even fashionable, and cheap, within the reach of all. To make the border complete have *Tropaeolum Lobbianum* var. behind the Dahlias, trained to stakes 6 feet high and about 4 feet apart. These should be sown early in April in pots in a frame, potted off singly or in threes, and put out at the close of May or early in June. In the intermediate space, and that between the Dahlias and Sweet Peas, Mignonette should be sown about the middle of April, and we then have a carpet of the sweetest floral essence, and one that will be charming all day long with the merry hum of bees. There should be a back row or hedge of Sweet Peas sown about the middle of April or not later than early May. Secure them to sticks that are high enough, as nothing looks so bad as a leaning background or with the top half over.

To make the most of the flowers that such a border will give it will be advisable to grow some of the ornamental Grasses to intersperse with the flowers in setting up, for they impart a gracefulness that is most pleasing.—G. ABBEY.

NOTES ON ORCHIDS.

SHADING ORCHIDS.—The idea that many of our coolest *Odontoglossums* required to be kept from the reach of sunshine has now about passed away, and we are having abundance of proofs that this idea was a wrong one. In this country the sun's rays, even after passing through glass, are not nearly so powerful as they are in the tropical zone where cool *Odontoglossums* are found, albeit at such an elevation as keeps them cool. In the middle of our summer season shade is an advantage to many Orchids, but during winter all the light possible is required to keep the plants strong. High up on the mountains of Central America the air is brisk and rarified, and the light is clear even under the shade of forests. A dark, damp, stuffy house, built in such a way as to exclude all sunshine except during summer when thick blinds are used, is hardly the place in which plants hailing from the districts mentioned would be at home. The sun will not hurt any Orchid in winter, and in summer all that cool *Odontoglossums* require is protection from powerful mid-day sun. With a free circulation of air no sun heat can do harm to Orchids; on the contrary, it is essential to their welfare, and therefore the coolest *Odontoglossum* will be happy in a house where the most powerful sunlight only is excluded, but where the sun's heat and a free circulation of air without draught are allowed to enter.—ERIA.

THUNIAS.—If carefully wintered in a cool temperature these plants should now be showing signs of new growth. We have just repotted ours, and find them in a promising condition, the old pseudo-bulbs being firm and plump, and the new buds thick and strong as Bamboo buds. For compost we prefer fibry loam and peat, equal parts, with a sprinkling of dried cowdung. If manure is not used in a solid state it will be necessary to supply the plants with it in solution as growth proceeds, Thunias being gross feeders. Unless this food is supplied the new pseudo-bulbs will be attenuated and probably fail to flower. If placed in a warm moist stove near the glass, and liberally supplied with water both at the root and overhead, these plants grow very rapidly and will flower in midsummer. *T. alba*, *T. Bensoni*, and *T. Marshalli* may be rested in a cool frame or house during the winter; but *T. formosa*, or rather a plant which we have under that name, will rot if kept in a low temperature. We have lost the bases of our plants this year through treating them as we

do the others. Can anyone give me any information about this plant? I had the name from the late Mr. Spyers, but neither he nor anyone I have hitherto inquired of knew anything of the flowers. The bulbs of the *Thunias* may be cut into lengths and placed in sand or peat fibre, in which they seldom fail to strike root.

BLETIAS.—The Japanese *B. hyacinthina* should now be pushing up its growths, and if kept in a frame or greenhouse near the glass they will be strong and produce flowers freely. As a rule this plant is grown in too much heat. It is almost hardy in this country, and therefore is never happy in a warm house. If potted in a mixture of peat and loam and kept rather moist at all times except during midwinter, feeding it a little now and again with liquid manure during its growing season, this species may be left in the same pot for several years. I have found that shaking the plants out of the old soil and repotting them has a bad effect on their health. *B. Shepherdii*, a large purple-flowered species from Jamaica, requires much more warmth than the Japanese one. We wintered ours along with the *Thunias*, and find them now plump and promising. The mixture advised for the *Thunias* suits also this *Bletia*, which after potting should be placed in the *Cattleya* house, where it will soon develop both leaves and flowers. The latter are as large as a *Lælia pumila* flower, and are very handsome.

PHAIUS GRANDIFOLIUS.—This is now in flower, its large-flowered spikes towering up above the lower plants and showing themselves with fine effect. *P. Wallichii* is also blooming in the same way. Both these plants are great favourites with us, although in many good gardens they are looked upon as weedy. It would be difficult to find a more ornamental plant than a large well-managed specimen of either of these with half a dozen strong spikes of flowers. To lovers of good old plants I would recommend a few large pots of these two plants if they do not already possess them. Planted in loam and cowdung in large roomy pots, and placed in a vinery or Peach house to make their growth, they will by the autumn be strong enough to produce spikes 4 feet long. Both plants are very accommodating as regards position. They will grow anywhere where there is heat and moisture, though, of course, a moderately light position suits them best. In the tropics they are used as bedding plants, much as we use the *Cardinal Lobelia*. We have *P. luridus* from Ceylon now showing its flower spikes. This species we grow in the tropical house. The handsome *P. tuberculatus* we do not at present possess, though from what is said of it there can be little doubt of its merits.

DISA GRANDIFLORA.—Is tobacco smoke injurious to these plants? Up to last week our plants were in every way satisfactory, strong, healthy, and without a spot or a brown tip; but a day or so after a mild fumigating in the house where the *Disas* stand the tips of the leaves turned brown, and they are now looking a little sickly. Green fly is fond of this plant—so fond, in fact, that unless some antidote is frequently applied they are certain to gain a strong footing. It is not always easy to find out whether tobacco smoke does harm, and I am inclined to believe that its ill effects are not unfrequently attributed to some other cause. For instance, what causes many *Masdevallias* to turn black under the leaves and look so very unsightly? A friend suggested that it was most likely the effect of tobacco smoke on the leaves when young, and that the marks did not show until the foliage ripened. Most growers fumigate their *Masdevallias* more or less often, and very few, if any, growers can show old plants unaffected by black spot. Of course this suggestion may be quite wrong, but to me, with my experience of what smoke will do, it seems not unworthy of consideration.—W. W.

ONCIDIUM CONCOLOR.—A very pretty and useful Orchid for cutting. I find it does best when grown in baskets hung close to the glass in the *Cattleya* house, or in any structure that is kept at an intermediate temperature.

SOPHRONITIS GRANDIFLORA.—This Orchid is often recommended to be grown in a cool temperature, but I have found it to succeed best in pots placed in a basket and hung in an intermediate house. The blooms are brighter in colour and twice the size than when grown in a cool house.

LÆLIA AUTUMNALIS.—Many gardeners find a difficulty in growing the above useful plant successfully. I have found it best when in a cool house close to the glass and without shade. The same treatment suits *Lælia majalis* admirably.—A GROWER.

ONCIDIUM SARCODES.—About a year and a half ago I received direct from Brazil a box of Orchids, among which was the above variety. They were packed in wood shavings and nearly dried up. I potted them, and now they are healthy

plants. *Oncidium sarcodes* has a spike of bloom on it nearly 4 feet long.—H.

CUTTING DOWN DENDROBIUMS.—At page 204 I notice that "B." states he has been very successful in cutting down *Dendrobiums*; but this is so different from my own experience and that of many other growers who have tried the experiment, that it would be very interesting if he would favour us with particulars as to his mode of treatment. Does he remove all the old pseudo-bulbs? If so, when are they cut down, and how long has he practised the system?—C.

ORCHID SALE.—Last week Mr. J. Stevens held a large sale of Orchids at King Street, Covent Garden, over 400 lots being entered. *Cattleyas*, *Odontoglossums*, and *Dendrobiums* were numerous represented, and some good prices were realised. Some of the best varieties of *Cattleya Trianae* were sold for sums varying from £3 to £16 according to their quality. Varieties of *Odontoglossum Alexandrae* realised from £3 to £10, one exceptionally fine form with large pure white flowers being sold for £16 5s. A plant of the *Trentham* variety of *Odontoglossum Rossi majus* was sold for £13 2s. 6d. Plants of *O. Andersonianum*, *O. Halli*, and *O. triumphans* fetched four to five guineas each. Some unnamed *Odontoglossums* were included in the sale, and one dark-flowered form realised £17, others being sold at proportionate prices. A rosy-flushed variety of *O. Pescatorei*, very beautiful and distinct, was knocked down at £7 17s., while a small plant of *Lycaste Skinneri alba* was sold at ten guineas. The majority of the plants were in flower, and some in very fine condition, a display of great interest being formed; indeed these Orchid sales increase in interest, and are assuming the proportions of exhibitions.

Messrs. Protheroe & Morris held a sale of imported Orchids at their rooms, Cheapside, on the Friday following. The plants offered included *Odontoglossum polyanthum*, which was sold at moderate prices, some of the best realising three or four guineas. *O. ramosissimum*, a difficult Orchid to import, was in very good condition, and the prices were similar to the preceding. *Nanodes Medusæ* was mostly promising, and fair prices were realised for the best.

SIEBOLD'S PRIMROSE.

DURING a somewhat varied experience of hardy plants I have often been asked to give a reason for the disappearance of this plant, without in many cases any apparent cause. This, combined with a wide-spread belief that the plant is not thoroughly hardy, has tended to bring it into bad repute with gardeners. The plant, however, is perfectly hardy, and if given a proper soil and situation none will produce a more brilliant and varied display than this and its numerous varieties.

This member of the genus *Primula* has been somewhat unfortunate as regards its name, various authorities having called it *P. cortusoides amoena* (Hook.), *P. amoena* (Hort.), *P. Veitchii* (Rob.), *P. Sieboldi* (Lehm.). The two former might be discarded on the ground that it is perfectly distinct from either, the latter plant not being as yet in cultivation, and *P. Veitchii* having to yield to *Lehmann's* name on the score of priority. This plant was introduced into cultivation by the late Mr. J. G. Veitch from Japan. It produces its flowers in April and May on slender stalks about 1 foot in height, bearing an umbel of from six to twelve flowers each on its own little pedicel. In the type the colour is a rich rose with a white eye, but this is very variable. The corolla is from 1½ to 2 inches in diameter. The capsule is grooved, and the seeds roundish and flattened. The leaves are ovate acute, occasionally cordate at the base, about 3 inches in length by 2 in breadth, coarsely toothed and hairy. Being of a delicate texture they are apt to be broken when exposed to rough winds.

To insure success with this plant all that is necessary is to secure a place moderately shaded from the direct rays of the midday sun and well drained, taking out the soil to a depth of 9 to 12 inches, and placing a layer of broken pots or stones, if necessary, to prevent the stagnation of water around the roots. A mixture of ordinary garden soil and leaf mould in equal proportions, with a little sand if too heavy, as in this case it is better to have the mixture too light than the reverse, will be all that is necessary. But the whole secret of success lies in the manner in which they are planted, which cannot be too carefully attended to. Unlike most *Primulas*, this plant forms a series of prostrate stems, from the under surface of which the fibrous roots are emitted, each stem branching off in various directions, each one having a bud at its extremity. These branches should be carefully divided about this season just as they are commencing to make their annual growth, and planted in such a manner that the stem rests flat upon the surface, or so nearly that

the first shower will leave them fully exposed upon the surface in the manner of a German Iris, while the actual roots are put right down into the soil, there to ramble about. This full exposure of the stems to the light and air causes them to be firm and well matured, fit to resist the cold and damp of winter, and in cold soils or low and humid situations a very slight covering of finely sifted coal ashes applied about the end of October, though not sufficient to afford any great protection, is yet very beneficial in its effects. If so treated they may be allowed to remain for several years without division or removal, and will form a dense mass of closely interlaced stems, producing annually sheets of bright flowers and attractive foliage. The varieties best adapted for outdoor growth will now be mentioned, the writer being careful to notice only such plants as have been well tested in various localities, especially during the winters of 1879-80 and 1880-81, although there is no doubt but what the newer varieties will prove equally hardy when they become sufficiently common for strong plants to be procurable.

Primula Sieboldi.—This, which is usually considered the type, is moderately strong in growth, having flowers of a rich rose colour, with white eye.

P. grandiflora.—Larger flowers, of a French white internally, but bright rose without. This and the next have drooping flowers, but are stronger growers than the type.

P. grandiflora alba.—A fac-simile of the preceding, but with pure white flowers.

P. intermedia.—Smaller in all respects but that of height than the type, but with the petals much narrower in proportion to their length, giving it a very distinct and what is often called starry appearance.

P. intermedia alba.—A pure white form of the preceding.

P. fimbriata oculata.—Flowers bright violet, with a white eye. This variety has the petals closely serrated and numerous fine lines of white from the eye running into the petals; very distinct.

P. lilacina.—Large lilac blooms, with the petals coarsely toothed and fringed, the margins frequently overlapping at the sides in regular order, giving the bloom somewhat the appearance of an abortive attempt to produce a semi-double flower.

This list might be easily extended, giving a much greater variety of colour, but anyone having been successful with these will no doubt be tempted to procure a more varied selection.—KENT.

A PLAGUE OF MILLEPEDES.

I HAVE sent you a small box with some Beans in it swarming with insects that have infested my garden since the summer of 1882. They were first noticed that summer in the Strawberries. In them they only make a hole the size of a knitting needle, often close on a hundred of the worms being found in a Strawberry. I took up the whole lot of Strawberries, severely salted and dug in salt. Two weeks after I severely sooted and limed all the ground, then replanted Strawberries. Last season the pests were much more numerous, and hundreds of Strawberry fruits were destroyed. They also attacked a few of the Potatoes. I found them in roots of Globe Artichokes, all this wet winter in the Celery, also in Carrots, also in all the Apples and Pears and Plums that were a night on orchard grass after wind, also in a few Dahlia roots when taking them up. Last November when digging all the garden it was heavily salted. On planting these Beans the ground was limed and sooted, the Beans and Peas were soaked for two hours in a basin with half petroleum, some softsoap and half water, and were greasy and wet when put into the ground. Not seeing any Beans coming we took them up this day, found forty-nine of them rotting, and all infested as those I send you. I also found them at the roots of some choice Pansies along with the leather grub. The Pansy bed, after being cleared of plants, was deluged with extra strong solutions of petroleum and softsoap, half of those and half water; now the Pansies in the same bed look healthy and strong. The pests further attacked Nectarines and Peaches on the ground last autumn that escaped falling into the nets to receive them. I think I have done everything thirty years' experience has taught me, along with all the valuable hints I have had during the last ten years from the Journal. I am now utterly beaten by the reptile I send you, and can only think of burning the surface of the entire garden, which of course no one can do, nor any part of it now or for this season after the six weeks' deluge of rain, the ground all over this locality being water-sopped and unable to let down the rainfall of this last week. I apologise for the length of this information I send of this pest, but all my neighbours are much in the same boat, and I can neither find out what the beast is or how to get rid of it. Again, I say, pray excuse a suffering inquirer.—SAXORING.

N.B.—For four years since I began wasbing Beans and Peas in strong solution of petroleum I have never lost one, and always till now had splendid crops of Peas.

[The reptiles infesting the Beans are millepedes. From reports that have reached us it appears that this spring much mischief has been done in some gardens by various species of this garden pest. It has been noticed by naturalists that most insects, even subterranean feeders, are

sufferers by such a mild and damp winter as that of last season, but the species of *Julus* are evidently none the worse for it; and probably, as a rule, all the year round those gardens that are insufficiently drained are likely to be harbourers of the pests. The commonest species are *J. pulchellus*, so called from a double row of crimson spots along the back, a very small but active species; and *J. terrestris*, a larger insect, of a brown or reddish-brown colour, and which, if less numerous than its relative, makes up for this by its size. It is also supposed to live and feed for nearly two years. These and other species of *Julus* destroy slugs, smaller insects, and decayed vegetable substances. Their taste for variety, however, leads them to attack bulbs and corms, also newly sown Beans and Peas, the roots of Cabbages, and many other plants. Hence it is necessary to take measures against them, as by setting traps, pots being loosely filled with such articles as are likely to attract them, moist rotting roots, damaged Potatoes or Apples, &c. Numerous we know are the compounds recommended for destroying root-feeders; but the *Julidæ* are so tough, and cling so closely to the object they are attacking, that it is difficult to kill them without damaging the plants. We fancy bellebore tea would be sometimes efficacious. In potting, when there is reason to suspect that small millepedes may be present in the soil, this should be baked before using. In bad cases ground may be so infested with them as to need dressing with sulphuric acid, to the destruction of all animal and vegetable life. They seem to have few natural enemies. Birds seldom meddle with them. Our correspondent has himself indicated one of the best remedies—petroleum. This applied to the infested ground the same as it was applied to the Pansy bed would also probably have a similar effect in extirpating the pest, and act as a manure for the crops succeeding. The soil also probably needs draining, and should be thrown into ridges in the autumn to the action of frost, breaking the crust whenever possible, to expose the greatest possible quantity of the soil to the severity of the weather. Burning the soil would be efficacious, but that at present is out of the question.]

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

I AM very sorry I have not been able to send Mr. Cutler the information he asked for. On reading his communication in November last I wrote at once to my friend for all particulars and permission to forward his name, &c., to Mr. Cutler, that the Committee might inquire into the case. He did not reply. I wrote a second time, but have received no reply. I waited, hoping to have an opportunity of seeing him personally, but have not been able to do so thus far, as the last time I heard anything of him he was living nearly 100 miles from here, and he is now old and probably in feeble health, so that I do not wish to trouble him more than is necessary. The member of the society whom he spoke to for assistance on the subject has been dead for some time, so that his name need not be mentioned; and here is probably where the mistake occurred through my friend not applying to the Secretary in the usual way. It seems from what has been published on the subject since I first wrote he would have then obtained a very different answer. Why he did not pursue the subject any farther I know not; perhaps his circumstances improved. At any rate he did not appear to trouble himself any farther, and contrived to do without the assistance of the Society.

It will now be seen how I have been misled, as he told the case to me and a friend as stated, and now withholds permission for me to move any farther in the matter; but as I stated in your issue of November 29th last I was not writing on his behalf in any way. If he still required the assistance of the Society he would doubtless have used some of the means mentioned by Mr. Cutler for obtaining it, or if he had requested me to move in the matter for him I should certainly have applied to Mr. Cutler in the first place.

I do not allow my imagination to run riot when I take up the pen; on the contrary, no one dislikes fiction of all kinds more than myself; but, as stated at the time, "I wrote for information for myself and also for others" on a subject which the rules of the Society gave, practically speaking, no information whatever, as I fully intended joining the Institution as soon as my circumstances permitted if I received a favourable reply. And I was thus giving the Secretary an opportunity to clear up a dark question and advance the claims of his Society before the public, as I felt most likely the same difficulty had appeared to others as well as myself (which conclusion was afterwards justified by another correspondent), and I merely mentioned the case as an example of the information I wanted, and knowing it is more convenient for many to pay down a sum of £10 10s. at once when young than to keep up an annual subscription of £1 1s. through life under varying circumstances, "provided each gave equal advantages." These were my sole motives for asking for the information. Most certainly I had not the least wish to disparage an institution which I know has done so much good to members of my vocation.

In conclusion, if anything I have at any time written has in any way prejudiced the Institution or anyone connected therewith I fully apologise for the same. Speaking for myself I have more confidence in the Society now than I ever had, and I sincerely hope everyone else has also.—W. H. DIVERS.

CONTROVERSY.—Acting on the principle I suggested to others when writing on this subject before, I do not reply to "C. W.'s" irrelevant question (page 208) concerning Vine shoots, but advise him to find out why the contents were put into the bottles in the first instance, and why the Vine shoots were inserted in these contents. When he has discovered the reason of this he will learn how the shoots grew and were supported also. The form in which "C. W.'s" question is put now leads towards

one of those irrelevant side issues I cautioned readers against before, and which I have not time nor inclination to follow.—CASUAL.

[We doubt if "C. W." will have either time or inclination to "follow" this note.]

TRILLIUMS.

THE genus *Trillium* includes some of the most beautiful and useful hardy plants we possess; unfortunately they have gained the reputation of being difficult to cultivate, and in consequence they are not so common in gardens as they might otherwise be. As regards the soil in which they are grown they are not at all fastidious, although in most cases they prefer a peaty soil; *T. grandiflorum*, for instance, will succeed fairly in ordinary loam in partially shady positions. The soil should be deep, and it is absolutely necessary to have it well drained, as they are most averse to stagnant moisture at their roots. In an artificial bog they thrive admirably, and although the increase is slow it is always sure when once they are well established. They are also very useful for edging beds of *Azaleas*, *Kalmias*, and low-growing *Rhododendrons*; and *T. grandiflorum* especially has been very effectively used as an edging for clumps of *Pernettyas*, the shade and protection from cold winds being in these cases quite sufficient for their well-being. Few plants are better fitted than *Trilliums* for shady positions, and it is a matter of regret that no one has given them a chance to naturalise themselves on a large scale

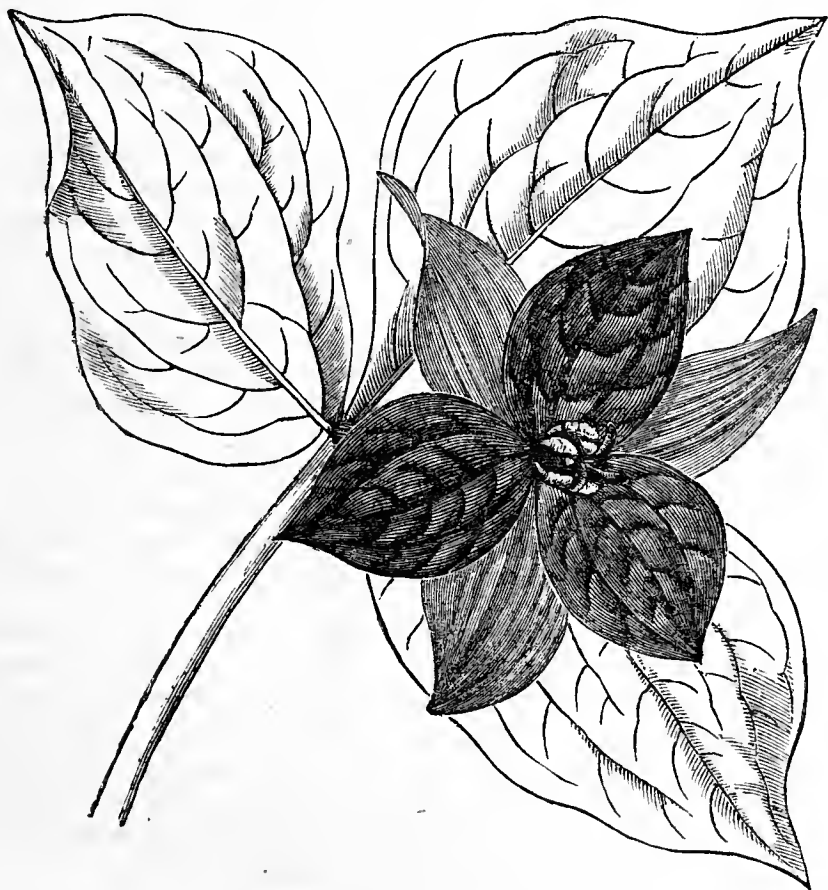


Fig. 47.—*Trillium erectum*, var. *atropurpureum*.

in wild gardens or by the edge of shady walks, as they come into flower just after the *Crocuses* and *Snowdrops* are past.

Trillium grandiflorum is an extremely handsome and singular plant. It grows from 1 foot to 18 inches in height, and the leaves, which are three in number, are borne in a whorl umbrella fashion near the summit of the stem; they are broadly ovate, and of a dark shining green colour, having well-marked veins. The flowers, of which there is one to each stem, spring from the centre of the whorl of leaves, and are supported on short stalks in a slightly drooping position. The three petals are ivory white, and the sepals, although generally green, at times vary to cream or whitish. This species has been grown with considerable success as a pot plant, and as it flowers early in April, through May and June, is very useful for that purpose. Native of the Northern United States, where it is found plentifully in rich woods.

T. erythrocarpum, the Painted *Trillium*, is the most striking and beautiful species of the group, far surpassing any of them, but is unfortunately an extremely shy flowerer; the leaves are more inclined to lanceolate than any of the others, bright green, taper-pointed, with vivid purple margins. The petals are wavy at the edges and widely spreading, pure white, with rosy purple streaks reaching half their length; they are almost twice as long as the sepals. It is found in the cold damp woods and bogs along Lake Superior. It would be a magnificent plant for naturalising. It flowers in May and June.

T. erectum, the Purple Birthroot, is one of the most variable of all, some of the forms having large reddish purple flowers in all shades, the leaves varying from broadly oval to nearly orbicular, with very abrupt points. It grows from 9 inches to 1 foot in height. It flowers in May and June.

T. erectum var. *album* (*T. pendulum*) does not differ very much from *T. grandiflorum*; the petals, however, are invariably greenish tinted, sometimes yellowish; the leaves are also sharper pointed.

T. erectum var. *atropurpureum*, of which a good representation is given in the woodcut (fig. 47), is a much freer-flowering plant than any of the above two; the petals are of a dark mahogany colour, by which alone it is easily distinguished from *T. erectum*; they are inclined to droop. The leaves are less round, having a gradual taper to the point. This is a very desirable plant.

T. cernuum is more interesting than useful, as are also *T. sessile*, *T. nervosum*, and *T. discolor*, the latter being chiefly noteworthy owing to the large bright green, blotched, rhomboid leaves.—M. S.

SPRING TREATMENT OF CAMELLIAS.

So long as *Camellia* plants are in bloom little can be done to them towards preparing them for supplying flowers another year; but as soon as the last of the buds have expanded no time should be lost in taking them in hand to improve their condition. Many of the plants have now finished flowering, and others will be over very shortly. From the time the first flowers open until they are all over it is often difficult to syringe the plants without injuring the flowers, and some plants when left without attention of this kind are apt to become dirty. Sometimes a black matter takes possession of many of the leaves, and all the plants will become dust-stained on the foliage. To clean all such thoroughly before growth begins is one of the principal operations connected with the spring treatment of *Camellias*.

Established and healthy-growing plants do not often require any attention at the root. Plants in pots may have the drainage looked to without breaking the roots, and plants in beds and borders do occasionally require a little fresh soil by way of a top-dressing or extension of the rooting material, but this work should never be regarded as part of their annual requirements. It should be done thoroughly, and then no more will be wanted for years. *Camellia* roots must, however, be in good condition before leaves and blooms will form and expand properly. A compost of half peat and half loam, with a liberal dash of gritty sand added, is suitable for *Camellias*. Good drainage is also essential to success.

Where *Camellias* are growing luxuriantly they are very liable to become too close and thick. Two years ago we cut a cartload of superfluous branches out of our trees, and we are now dealing with them in the same way. Too many branches is as great a fault as having too few. An intricate mass of branches will never be well furnished with buds. Exposure to sun and air is necessary to form and mature these, and a judicious distribution of the wood is therefore requisite. Thinning should be done chiefly in the centres of the bushes. The small spindly twigs should be taken out first; these do no good as bloom-producers, and only stop the circulation of air. After these, all branches which cross or rest on each other are taken off, and the whole are thinned out in much the same way as we should treat an Apple tree when pruning it in winter.

In unfortunate cases where scale, mealy bug, and such pests are in possession a general syringing and brushing should be given with water heated to 90° and containing some insecticide. In ordinary cases of dirt sponging the foliage and a good syringing will suffice, and in many instances syringing alone will be enough.

The plants may next be started into growth. This is best done by having the roots in a moist state, and keeping them so. The branches should be syringed two or three times weekly; the atmosphere should be kept humid, and the temperature from 60° to 70°. Under these conditions substantial growth will be produced, and as the days lengthen and the weather brightens the wood and flower buds will gradually mature. *Camellias* may be had in full bloom eight months after the date of their beginning to make the young wood, and this information will be a guide for beginners who may want their *Camellias* in flower at a certain time.—M. M.

HOW I RAISED A GOOD SUPPLY OF PARSLEY.—Last June, finding I was short of my usual lot of Parsley, I at once put some seed in a pan with damp sand, and placing it in the stove to germinate, which it soon did. I then sowed it in a bed, and covered it with mats till I could see

the plants. These were carefully attended to till ready for transplanting. Inserted in well-prepared ground, they grew quickly and strongly and afforded a good supply of Parsley when most of my friends had none. The roots were dipped in soot water before insertion.—J. WINDSOR.

EAST LOTHIAN STOCKS—BEGONIA ROEZLII.

I READ with much pleasure in your number of the 6th inst. the article on the above subject because it gave me some hope of being able to recover a lost treasure. Some years ago I had some seed of East Lothian Stocks from a nurseryman in Scotland, whose name I have never been able to recall. I conclude that I applied to him in consequence of an advertisement I saw in the Journal. I sowed the seed in July, and when the plants were large enough to handle planted them three in a pot, and kept them during the winter in my orchard house. As soon as they showed the blooms I pulled out the single ones, gave them a shift, and placed them in alternate colours—white, purple, and scarlet, between my Peaches and Nectarines. They flowered magnificently, and anything more charming than the aspect of the orchard house with the Peaches and Nectarines in bloom, the Stocks occupying the intermediate spaces, and a few pots of Roses and Mignonette interspersed, can hardly be conceived. When the first bloom of the Stocks was over I had thought of removing them, but they had no intention of allowing their beauty to fade away so soon. They had rooted through into the border, and after being topped continued to yield an abundance of flowers for several months, so that the fragrance which had made the house so delightful when the trees were in bloom still pervaded it when I gathered the ripe fruit. I have sown East Lothian Stocks (so called) since, but with very different results. The reason of this has, I think, been satisfactorily explained by Mr. Campbell, and I hope I may once more obtain some true seeds.

BEGONIA ROEZLII.—Have any of your readers tried the Begonia Roezlii? To my taste it is one of the most elegant winter-blooming flowers we have. In a house kept at about 60° it begins to bloom early in February, and continues for several months, sending out its branches with clusters of terminal flowers of the most brilliant kind. It is of easy culture, and comes in well as the Poinsettias are passing away. I have plants 2 feet high, with branches of bloom to the number of eight or nine thrown out from every joint.—C. J.



WE learn that the next SPRING SHOW OF THE ROYAL HORTICULTURAL SOCIETY, to be held on the 25th inst., promises to be specially good. Hyacinths will be very strongly represented, and they are exceptionally good this year. Special prizes are also offered for Amaryllises. There will also be a fine display of Primroses and Cinerarias. As announced last week there will be a special exhibition of Daffodils on Tuesday, April 1st, and from the favourable season a most interesting exhibition is expected. A paper will be read by Mr. F. W. Burbidge at a meeting to be held at one o'clock, Professor Michael Foster, F.R.S., in the chair, when the principal English and continental cultivators of this charming flower are expected to be present.

— IT would appear that the qualities of CHIONODOXA LUCILLÆ as a garden plant are by no means generally known at present; it has been highly praised by some and denounced by others as no better than a Scilla of ordinary merit, but under good cultivation some extremely satisfactory results may be expected. We are credibly informed that in Dublin spikes have been produced by plants a foot high bearing "eleven flowers each, some of the bulbs being as large as a Hyacinth." If liberal treatment can insure such success there can be no question as to the position the Chionodoxa will soon attain in public opinion.

— THE decorative value of Messrs. Veitch's new species of DUMB-CANE, DIEFFENBACHIA JENMANI, will soon obtain a prominent place for it in all gardens where handsome variegated stove plants are appreciated, as it is one of the most distinct of all the numerous forms that have been introduced within recent years. The leaf is neat in shape, of a bright clear green colour, with oblong blotches or streaks of pure white parallel with the lateral veins, the contrast being most striking. It is of free growth, and will undoubtedly readily make large and imposing specimens.

— AFTER a singularly long and honoured service MR. MATHISON, gardener to His Grace the Duke of Buccleuch, Bowhill, Selkirkshire,

died on March 13th, aged ninety years. Until within the last few months Mr. Mathison attended regularly to his duties, and we believe him to have been the only gardener in Britain who, at the time of his death, remained in active service till his ninetieth year. He entered in the Duke's service at Bowhill about sixty years since. He was a man of splendid *physique*, and the same may be said of his stainless character, which led to his having been very much respected by his noble employers and by all who knew him. All honour to his name and memory.

— MR. JUSTUS CORDEROY writes:—"The very pretty early-flowering SAXIFRAGA CYMBALARIA seems but little known. I received it some years ago from Messrs. Backhouse of York. It is a very free-flowering and most accommodating plant; it can accommodate itself to any place; and when bearing its pretty little yellow flowers and shining foliage it is very attractive. It is dwarf or medium in growth; if on a dry wall it is very dwarf, about an inch high, but near the water edge it grows stronger or in the border; it is at home in the greenhouse, where I have seen it on a waterfall incased in ice. I have it now in a border under glass, about 1½ foot from a flue, under a north wall. It is an annual, sowing itself, and requires little attention."

— MR. C. WOLLEY DOD writes:—"On page 206 'X.' thinks that there is 'no basis at all' for the variety LEUCOIUM CARPATHICUM. He may be right, and in support of his view I may say that a hundred bulbs bought two years ago as Leucoium vernum produce flowers, some with green spots, some with yellow, and scapes some two-flowered, some one-flowered. Herbert, however, who has been thought a good authority says ('Amaryllidaceæ,' p. 331):—"I see no reason for confounding L. carpathicum ('Bot. Mag.' 45, 1993) (spathe, two-flowered; spots on the perianth yellow) with the one-flowered green-spotted vernum. I believe that vernum does not ever produce a two-flowered scape." (See 'Bot. Mag.' 2, 46, for L. vernum)."

— SPECIAL SOCIETIES.—Relative to the controversy on this subject which has recently appeared in our columns, we have received a communication from Mr. E. S. Dodwell, in which he complains that "Fair Play" "has grossly libelled him by name." We have authority from "Fair Play" to state that if Mr. Dodwell will point out wherein he considers himself aggrieved he will be happy to make the *amende*. We also feel ourselves aggrieved by the extraordinary letter signed "E. S. Dodwell," which appears in the *Gardeners' Magazine* of last week.

— MESSRS. J. CARTER & Co., High Holborn, send us examples of their EMPRESS POPPY ANEMONES, which are exceedingly fine, and merit the highest praise. The flowers are from 3 to 4 inches in diameter, of the richest and most varied colours—lilac-blue, violet-purple, intense crimson, bright carmine, red, blush, and white, most of the dark colours with a ring of white at the base, and all with a dense central tuft of black anthers. The sepals are of great substance, thick and lasting, and the plants are evidently very well and strongly grown.

— MR. R. P. BROTHERSTON sends us a BOX OF FLOWERS bright and beautiful, comprising the following:—Phalænopsis Schilleriana, a spike of eight flowers, much more richly coloured than is commonly seen, and of fine substance; Tea Roses, fresh, fragrant, and lovely, especially Madame Willermoz; Carnations, scarlet, white, and salmon, from plants that have been in flower for several months; Zonal Pelargoniums, scarlet, crimson, pink, and salmon, in trusses of twenty to twenty-four, some of the flowers exceeding 2 inches in diameter; Wallflowers, extremely dark in colour, and most fragrant; a charming silky purple Sisyrinchium grandiflorum, a large-flowered and deep purple variety of Aubrietia, somewhat like a fine Hendersoni; Dog's-tooth Violets, Pansies, with blue, white, and pink Hepaticas are all welcome indications of the advancing season, and arrived after their long journey as fresh as if but just cut. Mr. Brotherston considers nothing better as packing material than ordinary wadding, or "cotton wool" as it is termed, dry moss also being suitable; but these flowers are far the best that we have ever received packed in that moisture-absorbing substance.

— THAT superb Orchid ODONTOGLOSSUM PESCATOREI VEITCHIANUM continues unsurpassed in colouring amongst all the beautiful forms of the O. Alexandræ and O. Pescatorei type. Baron Schröder's unique plant at South Kensington last week had one panicle, with twenty-seven flowers of quite as good form and as richly coloured as on previous occasions. When Messrs. Veitch & Sons first showed this plant at Kensington, March 28th, 1882, it caused quite a sensation, as the spots

and bars are boldly marked, and of a distinct violet-purple colour on a pure white ground, the flowers also being very symmetrical. So handsome a variety was a suitable addition to the fine collection of varieties at The Dell, Egham, and Baron Schröder did well in securing it as a companion for his numerous valuable specimens. It may be incidentally mentioned that some growers have estimated this plant to be worth £250.

— CINERARIAS are now in excellent condition at Woodside, Farnham Royal, for Mr. James seems to have surpassed his previous efforts in the production of large substantial blooms and deep rich shades of colour. Some object to large flowers as coarse, but this cannot apply to the Woodside strain, for the utmost refinement is preserved, together with a velvety lustre of colour that renders the flowers very handsome.

— "B." sends us a box of *MAGNOLIA CONSPICUA* flowers as pure and wax-like as *Lapagerias*, and remarks:—"This is one of the most beautiful spring-flowering shrubs I know; its large white blooms well repay for what little attention is required at this time of the year to protect them from frost and cold winds. I have a large plant of it here with some hundreds of blooms just expanding, like those enclosed. The plant is perfectly hardy, having never been protected during any of the late severe winters."

— THE same correspondent observes:—"I am somewhat surprised to see Mr. Luckhurst calling *AZARA MICROPHYLLA* a climber. I have several plants of it, and find it quite a shrub. One plant stands out on the lawn here, about 6 feet high, quite a bush, being one of the first plants that Messrs. Veitch sent out. It has for several years flowered, and the berries have set freely, but I have never succeeded in getting any of the seeds to grow. I have propagated it from cuttings taken off the old plants in September, and inserted in a cold frame, have made good plants by the following autumn."

— THE local and general press have much to answer for in regard to the mis-rendering of PLANT NAMES, and instances of such are frequently brought to notice. One now before us in a report of a meeting at which a number of plants were employed refers to some well-known Palms as "*Latama Borbonica*," "*Kenthia Belmorenia*," and "*Corplyha Australis*," very moderate slips, but "*Robusta Arabia Reticulata*" is rather mystifying, and would seem to be a combination of *Grevillea robusta* and *Aralia reticulata*.

— WE are informed that "Messrs. Webb & Sons, the Queen's seedsmen, Wordsley, Stourbridge, offer valuable prizes for the best dish of their NEW PEA, THE WORDSLEY WONDER, to be competed for at the Royal Horticultural Society's Show, South Kensington, on July 22nd next."

— AT the last meeting of the Royal Horticultural Society PRIM-ROSES AND POLYANTHUSES were shown in strong force, and constituted the chief feature of the attractions. The Woking plants were exceedingly fine, the diversity of colours being surprising, from the richest crimson and purple blue to the most delicate mauve, lilac, yellow, and white, presenting a range of hues seen in few plants at this time of year. The profusion of flowers, too, renders them of great value for culture in pots. Mr. Waterer's plants had been lifted from the open borders as soon as the buds were showing, potted, and placed in a cool frame or house kept well ventilated, the principal object of this protection being to prevent heavy rains injuring the flowers and spoiling their appearance. They became established in a day or two, do not suffer in the slightest degree, and the flowers expand freely. For a conservatory or greenhouse stage such plants are most useful, and continue in flower for a week or two. The Polyanthus Prince of Wales, which was certificated, is probably the finest that was ever been shown both in size and colour. The individual flowers were 2 inches in diameter, the heads containing ten or a dozen each, and the colour a beautiful warm shade of crimson. One of Mr. Dean's varieties, named Blue Beard, was equally remarkable for the clear deep violet blue colour, much superior to any "blue" yet produced.

— WE have received a copy of the new issue of "CARTERS' PRACTICAL GARDENER," which has now reached the eleventh edition, bringing up the total sale to 81,000—a convincing result of its great popularity. It is a handy book of reference for amateur gardeners, and a safe guide on the culture of flowers, fruit, and vegetables, the various chapters having been written by some of the most successful gardeners of the day.

DIGGING.—I notice on page 184 that a correspondent advocates commencing digging at the lowest part of the piece of ground to be dug.

This may be the easiest way of getting the ground level, but it tends to reduce the depth of surface soil at the upper part. In the Hop gardens and fruit plantations here, which are dug annually, and the men are paid by piece-work, they always commence at the lower part and throw the soil downwards. In consequence, in the upper part of the gardens, the subsoil is quite close to the surface, and in the lower part there is a great depth of top soil. On my own ground those portions which I have dug at all are dug uphill, which keeps the depth of soil more even and counteracts the tendency of the soil always to move downhill when hoed, or by the action of rain, &c.—W. K., Maidstone.

PRUNING ROSES.

"EXPERIENTIA DOCET" and "D., Deal," will doubtless by their timely remarks on this subject relieve the minds of young Rose-growers who are watching Rose growth anxiously, if they have not already been induced to prune their plants. If they have not used the knife they will be encouraged to wait. Each year I watch I become more convinced that the later the pruning the better for the blooming season, and in cold districts much exposed to the delightful (?) bracing period of nor'-nor'-easters this is more than ordinarily necessary.

"Experientia Docet" does not, however, mention what I fancy most growers imagine injures the plants that are cut back when in this advanced state of growth, when, as he remarks, the bud can be detected at the end of the shoots—viz., the bleeding or weeping, which, if growing weather follow the pruning, is pretty certain to be seen. This weeping, many imagine, must weaken the plants. I do not think it does; at least, I know that beautiful blooms may be obtained from plants that have bled freely. I do not care to venture on any theories about sap. All I know is that good blooms have followed on these plants that have bled freely so as to damp the soil after being pruned. Would these blooms have been ever so much grander had the plants not bled at the section? Who can tell? Supposing the plants pruned earlier no bleeding would take place, but the sap that would have flowed in the later pruning, must, I presume, be rising now and pushing forward the lower buds into succulent growth, the very growth that is certain to suffer from late frosts. It seems to me it is a choice of two evils, and as the old saying advises us under such circumstances to "choose the least," I confess to believing that the least is the late pruning.

Somewhat connected with this subject is the protection given to our Roses during the winter. I doubt not where there are plenty of hands this may be done by covering only when severe frost comes, and uncovering again. There is no question to my mind that during the past winter it was wholly unnecessary, in fact I wish I had not done it; but my man Friday cannot dance attendance on Roses only, and I must get them into winter quarters in early December, and my plan is to cover with bracken and long coarse grass. There is evil as well as good in this with such a winter as we have had. I think there is a degree of heat in the moistened Fern fronds which stimulates growth in the lower buds and disposes some of them to start sooner than is desired, and this is approaching the same effect that the early pruning has. I think it is wiser to uncover early in March. Even then with the last two winters lovely coloured pink shoots will be showing from the root, and are likely to suffer from late frosts. Last winter in March we had for several nights over 20° of frost, and my winter clothing was all in a heap decaying. I confess I looked with some anxiety for the result. Not a few of these pink-root shoots were cut down, but I never grew better Roses; and the few times I ventured into the exhibition tent a fair share of success awaited me, and until sadder experiences attend me it will be my plan of action to uncover early in March. If the winter have been unusually severe and prolonged it might be the exception.—Y. B. A. Z.

ORTHOSIPHON STAMINEUS.

THIS is a very pretty and interesting member of the Labiatae, and is well deserving the attention of growers of stove plants; for, coming into full bloom about the end of July, it becomes extremely valuable in a decorative point of view, serving to enliven the plant stove just at the time when there is somewhat of a dearth. As a genus, *Orthosiphon* is closely allied to *Ocimum*, *Coleus*, and *Plectranthus*, but its inflorescence reminds one of a *Clerodendron*.

Orthosiphon stamineus is herbaceous in habit, and forms neat little bushes, which if required may be had in bloom when only about 6 inches high. Most cultivators will, however, prefer growing it to a larger size before allowing it to flower, and, therefore, when any bloom buds which are not required to develop make their appearance, they must be picked off. The stems and branches of this elegant little plant are furnished with light purple hairs; leaves sharply oval, toothed on the edges, and dark green on the upper side, but glaucous beneath, the veins in addition being sparingly clothed with short white hairs. The flowers are produced in terminal racemes, as the illustration shows. The corolla is about an inch in length, bluish-lilac in colour, having the stamens much exserted, which adds materially to the beauty of the raceme.

The culture of *Orthosiphon stamineus* is really of the simplest nature, which is another feature in its favour, inasmuch as any amateur possessing a cool stove may take it in hand without the slightest risk or fear of failure. Drain the pots well; for soil use about equal parts of peat, loam, and good leaf mould, adding a little sharp river or silver sand to the whole so as to make it feel gritty when taken in the hand, and during the growing and flowering season supply the plant liberally with water. It appears to be widely distributed over India and through the islands of the Indian Archipelago, but was introduced to our collections from the neighbourhood of Cape York in north-east Australia, by the late Mr. J. G. Veitch.—E. C.

CULTURAL NOTES ON GREENHOUSE PLANTS.

LAPAGERIA ROSEA.—This excellent evergreen plant does not find a place in so many greenhouses as it ought to do. It can scarcely be considered difficult to grow. The price is also reasonable, and why not give it a trial. Procure a young healthy plant (the present

best place. It is planted out in a well-prepared border, consisting of good loam. With good drainage it grows like a Willow. Train it to a wire underneath a rafter. After it has grown say from 4 to 6 feet pinch it, when it will then throw out its laterals the later where the flowers will appear. When it has flowered we prune it on the spur system, and it will soon break afresh. Keep it securely tied, pinching any of the laterals that appear to be growing in advance of the others to balance the growth. Red spider appears to be its worst enemy amongst insects. It should be syringed daily when growing. A handful of sulphur to a canful of water occasionally keeps the spider at bay, and fumigate when in flower. Along with this I send a flowering lateral branch for your inspection.

HABROTHAMNUS ELEGANS.—This plant is well named elegans, with its beautiful carmine clusters of flowers. There is no plant better adapted for the back wall in the greenhouse than the above, as it does not appear to thrive in the full blaze of the sun. Some gardeners are prejudiced against it, as it is subject to attacks of

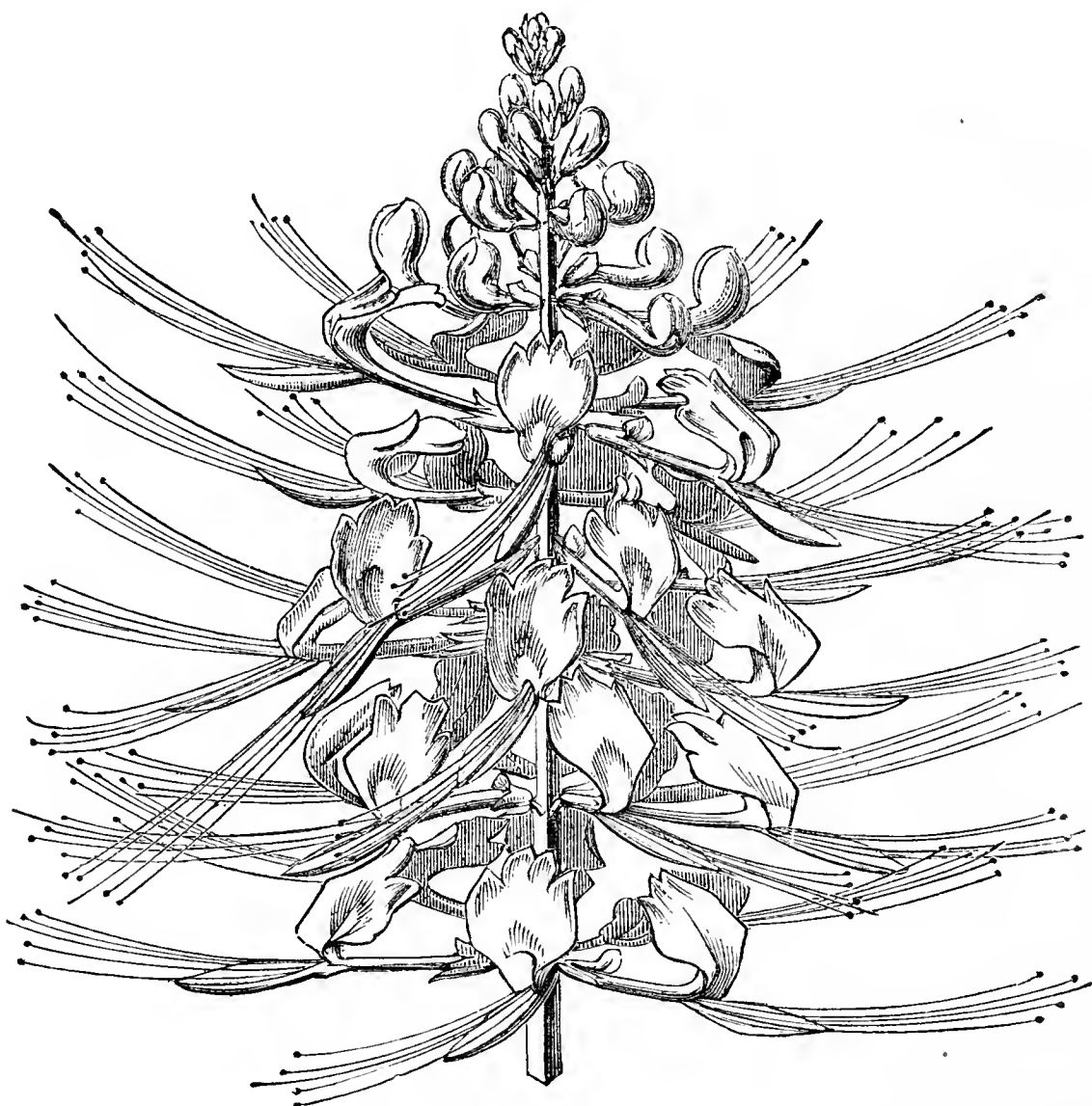


Fig. 48.—*ORTHOSIPHON STAMINEUS*.

is a good time to get one), repot it at once, using a mixture of good peat and loam, with as much fibre in it as possible, with a sprinkling of coarse silver sand, add also a little charcoal to keep the compost sweet. Do not overpot it. The drainage must be good, as it requires plenty of water after it has fairly commenced growing. There are various ways of training this plant. We have tried it on the back wall of a greenhouse, on wires underneath a rafter, and so on, but prefer the balloon for two reasons—namely, it can be easily removed from one place to another; when it is growing it appears to thrive better in a rather cool shady situation, and of course when in flower we like to see it in a more prominent place. It is easily kept clean by applying the syringe when growing; when in flower carefully sponge it.

CLIANTHUS PUNICEUS.—A very beautiful plant, but it has another recommendation besides being beautiful, for it flowers at a time when flowers are most appreciated—*i.e.*, in early spring. I once had a plant under my charge where it was trained in a span-roofed conservatory up one side of the house and down the other. A large white *Camellia* was growing underneath it. They both flowered at the same time, and the effect was magnificent. A plant here is trained somewhat similarly to the one mentioned. It is treated like a Vine, except in regard to temperature, the greenhouse being the

aphides, but any greenhouse plant is liable to these pests if not properly treated. Cleanliness ought to be the first consideration, such as the back wall of the greenhouse being whitewashed in the ordinary way, as well as the wires whereon it is trained. Plant it out as advised for the *Clianthus*. Make certain that drainage is good, as it is scarcely possible to overwater a vigorous-growing plant with perfect drainage. This is the secret of keeping it free from insects. As soon as it has done flowering prune at once, cutting out as much old wood as possible, replacing it with some of the strongest shoots that have just flowered. Do not train the young growth too closely. As soon as the flowers can be recognised stop tying it in; the weight of the flowers causes the branches to droop, which takes away the stiff formal appearance it otherwise would have.—J. J. C.

[The lateral branch of *Clianthus puniceus* sent by our correspondent was nearly 3 feet long, with vigorous healthy leaves 6 to 7 inches in length. There were twenty trusses of flowers and buds in different stages, one being produced from the axil of every leaf. It was one of the best grown examples of this plant that we have seen.]

BANKSIA ROSE BLOOMS.—The footnote to my remarks on this subject has at least explained what the writer meant by his directions on pruning

these in your issue of February 21st. Had he said all strong growth of one or two yards in length there certainly would have been little occasion for my questioning the value of the practice enforced. In self-defence I am bound to remind him that he said nothing about unripened wood except as regards the points of shoots in that condition, which he says should be removed; but in using the words "throughout the *strong growths*" (the italics are mine) the novice would certainly consider the 10 and 12 feet long shoots the strong shoots, not those of 4 or 5 feet long.—Y. B. A. Z.

A HYBRID FROM RHODODENDRON AUCKLANDI.

THE figure represents a flower and leaf (reduced in size) of a fine hybrid Rhododendron as above, raised by me. The pollen parent

the characteristics of *R. Aucklandi*, I have crossed similar hybrids to the one here figured with the pollen of the male parent again, and have a fine batch of seedlings two years old; indeed I have used the pollen of *R. Aucklandi* very largely in many experiments, which time will test.

The plant on which the flower here figured grew was 2 feet high and six years old.—J. H. MANGLES, *Valwood, Haslemere*.

AMARYLLISES AT CHELSEA.

THE annual exhibition of Amaryllises in Messrs. Veitch & Sons' nursery at Chelsea is now looked for by horticulturists as one of the standing attractions of the spring season, and large numbers of visitors will make a journey there within the next week or two, for these plants are most deservedly gaining great favour as their qualities are becoming known. For brilliance of colour and magnificence of effect they are unexcelled; and though few can hope to have such an extensive display as that at Chelsea, yet a dozen or two plants are invaluable at this time of year either in the stove or conservatory. In the Veitchian Amaryllis house there are now about 1200 spikes bearing from two to four open flowers or buds, and in a few days these will be at their best, as this bright warm weather is bringing them forward fast. Dazzling shades of scarlet are numerous, while the rich crimson tints serve to soften the effect considerably.

All the plants are plunged in tan to the rim of the pots; but until after the flowering time water is not too liberally supplied, as keeping the paths and plunging material moist is found sufficient, and preferable to drenching the soil. A temperature as near 60° as possible is maintained night and day, and if with sun heat it rises above this the ventilators are opened freely, providing the wind is not too keen; a little shade being also requisite. In the matter of soil liberal treatment has proved the best. A compost of good turfy loam with plenty of sand to keep it open, and one-fourth of old cow manure, is employed, the bulbs being potted in January and plunged, as mentioned above, no bottom heat being needed. After the flowers have faded the growth is encouraged by more liberal supplies of water both at the roots and over the foliage, the object being to obtain vigorous and well-ripened leaves and bulbs to insure satisfactory flowering in the following season. The plants are freely exposed to the sun as the growth becomes matured, and then rested until the starting time arrives again. At no period is liquid manure employed, as this has been proved to be less beneficial than a good proportion of stimulant in the soil, and the great point is to render the bulbs stout and ripe, as upon that in a large measure the quality of the flowers depends. Of course, this is influenced greatly by the character of the variety, but the best variety neglected in this matter will give unsatisfactory results.

The number of seedlings annually raised at Chelsea have added some scores of grand varieties to those already named, and in one house there are now five thousand seedlings, the results of last season's crossing. In from three to four years they produce flowers, and continue doing so each year until they reach considerable age, their capacity for flowering being apparently unimpaired. Every season we have the pleasure of announcing some novelties of sterling merit from this establishment, and the present season is no exception to the rule. One batch is very interesting, comprising the following:—General Gordon, Corsair, Canobil, William Goldring, Ceres, and Enchantress—all good varieties, and, strangely enough, from one pod of seed, the produce of a cross between Horace (the seed-bearing parent) and Auber as the pollen parent. These are of excellent quality, and will certainly gain much popularity.

General Gordon.—This is a bold and handsome variety with flowers 7 inches in diameter, the outer petals 3 inches in diameter and rounded. The colour is a bright reddish-crimson with a white central stripe extending to half the length of the petals. The spike is very stout and bears four flowers. This variety was certificated at the last meeting of the Royal Horticultural Society.

Ceres.—Very beautiful, the flower large and well formed, the petals broad and rounded; deep crimson, with a broad white central stripe. It is strong with six flowers in a head.

William Goldring.—Bold and effective, the flowers 7 inches in diameter; dark scarlet, with a central white stripe. Four in a head. This flowered last year, but it seems to have improved greatly.

Enchantress.—Flower handsomely formed, with broad rounded petals streaked with rosy crimson on a white ground. Four flowers in a head. Canobil is a neatly formed flower of a rosy tinge; and Corsair, rich scarlet, have been seen before; both are good. Of other new varieties he following are remarkable for their size and colour.

Ne Plus Ultra.—A magnificent variety, one of the finest that has yet been produced. Brilliant scarlet in colour, the flowers nearly 8 inches in diameter, the petals 3½ inches broad and of great substance. This was certificated at the last Kensington meeting.

Terence.—One of the large-flowered type, the blooms being over 7 inches in diameter, of a clear bright scarlet colour.



Fig. 49.—Hybrid Rhododendron Aucklandi.

was *R. Aucklandi*, the seed-bearer one of the common hardy hybrids. The floret was 3 inches across, and the truss contained twelve flowers. In colour the seedling was intermediate between the two parents, of a soft pink, paler in the centre, saucer-like in shape, and with small stamens after the manner of *R. Aucklandi*. The Editor of this Journal expressed great admiration of the flower; but it is not quite up to the standard of what I expect from some of my very numerous seedlings of this strain, which ought, I think, to yield a crimson equivalent of the male parent, one of the grandest and most beautiful of all Rhododendrons. For the purpose of raising a hardier strain with all

Minerva.—An imposing variety; flowers rosy crimson, 8 inches in diameter. Four in a head. Bold and rich in colour.

Brutus.—Very neat flower; bright scarlet, and vigorous in habit.

Pickwick.—A strong and free-flowering variety, with two spikes, each having three flowers; crimson streaked and netted on a white ground.

Bayard.—Intense scarlet; the outer petals tipped with white, which affords a striking contrast. The plant has two spikes and two flowers each.

Clarinda.—A well-formed flower, very delicate and pretty. The petals are white, the upper ones tinged with red.

Pollentia.—Of great size and substance; 8 inches across; rich bright crimson, fine warm colour, and with a very narrow margin of white.

Many other varieties are advancing, and will be noted as they develop their characters.

PRIMULA HARBINGER IN POTS.

MR. ABBEY (page 202) is right in his estimate of this beautiful hardy Primrose, grown as it is produced at Burghley and flowered in pots under glass. For conservatory and greenhouse decoration it is at the least equally effective with the best Chinese Primulas, and in the estimation of not a few surpasses them by its simple, yet massive, beauty. Harbinger is more of a Polyanthus than a Primrose. Its flowers are much larger than those of the common Primrose, also rounder, smoother, and nearly white; while they are borne in huge bunches, larger, and looser than ordinary Polyanthus. No doubt the plant is quite hardy, and will grow and flower freely in the open air; but flowers exposed to the wind and rain must necessarily be deficient in size, form, and purity as compared with those on plants having the shelter of glass. A cool, light, well ventilated house is a suitable position for Harbinger, or a frame from which frost is excluded will answer well. Crowded amongst other plants, far from the glass in a rather warm house, it would probably not be satisfactory. Planted out in rich soil in a shaded position in the summer and potted in the autumn would presumably be a successful mode of treatment, and certainly so easy that no one having even a small greenhouse need not deny himself the pleasure of growing this very attractive spring-flowering plant.—TRAVELLER.

NOTES FROM MY GARDEN IN 1884.

GLADIOLUS.

"THE whirligig of time" seems to turn more rapidly as we get older. It may be that the consciousness that there are not many more rounds of the clock for us to observe makes it appear to do so; but certain it is that time does seem to move more rapidly, and I can hardly believe that I have again to record the successes and failures of another year. Yet so it is; and as the time for dealing with the Gladiolus is now at hand I cannot do better than record my experience with this most noble yet puzzling flower.

Notwithstanding the opposition which was shown to my theory that the cause of such frequent failures and so many losses in their culture was purely and simply disease, and that no theory of bad culture or degeneration could account for it, I find that it is now beginning to be generally acknowledged, though I am not as yet prepared to admit that it is contagious. Various reasons have been assigned for this disease, which is certainly more prevalent in England than on the continent as far as my experience goes; but I do not think that it is very difficult to account for. Soil itself seems to make no difference. I say itself, but soil combined with climate certainly has much to do with their successful culture.

The present innumerable hosts of named varieties are the product, I believe, of two or three species—*floribundus*, *natalensis*, and *oppositiflorus*. *Gandavensis* and *branchleyensis*, which have been largely used in hybridising, are, I believe, garden hybrids. Now these parent species are natives of Natal and Madagascar, and hence they have the very different climate of these islands to contend with, more especially as to the ripening of the corms. It is well known that after the flowering time is over long herbage covers the ground, and then comes a hot scorching time, when the corms become thoroughly matured, the foliage having all withered away. Contrast this with our ripening time. Defer it as much as we will, we can never take up the corms before the foliage has died down, consequently they must lose the force it would otherwise acquire from the decaying stem, and weakness is thereby engendered; moreover, the high breeding of some of the varieties makes them more susceptible. In stating all this, I do not in the least profess to write scientifically, but I am not a bit frightened by that; and when I see what is now written on the subject of glazed *v.* unglazed pots I cannot suppress a smile at the utter dogmatism of scientific men. Why, there was nothing more impressed upon us in pot culture than that we must have pots as porous as possible, for, in the words of an American writer in "Harper's," "the roots need a circulation of air and the free exhalation of moisture as truly as the leaves;" and yet such scientific gardeners as Mr. Thomson of Drumlanrig advocate their extensive use. However, this by the way. I may be wrong in my science, but I think common sense is on my side, and that the disease is no way unaccountable. The comparative freedom of the French growers from this disease is due, I think to their climate, and more especially to their finer and drier autumns. An autumn which will ripen the Chasselas de Fontainebleau Grape in the open is very different from ours; and, although they lose their roots, they do not do so to anything like the same extent that we

do. For the same reason I should imagine that they would do well in some of the eastern States of North America.

And now to my own collection, which does not exceed, including seedlings, some 500 or 600 corms. I had one large bed 33 feet long of French-grown roots; another of nearly the same length of my own harvesting, containing also a few of Mr. Kelway's varieties; a bed of seedlings, and a small nursery of young corms saved from those of the previous year, generally known as spawn. I did not last year take the same trouble in planting that I had done—namely, making a hole for each bulb, but contented myself with drawing drills and planting them in the rows. I was quite satisfied with the result, and certainly never had a more healthy-looking or vigorous bed than that of the French varieties. They every one came up. All threw up spikes of bloom, some of them magnificent, but—then disease began to manifest itself, the foliage turned brown, and I suppose quite one-fourth of them were useless. My own harvested corms were not so good: I had some fine, but also some weakly spikes, and I suppose I lost fully one-third of these. The seedlings, as is the way of youth, were vigorous and strong; but even amongst these there were diseased roots, which had to be thrown away. The cormlets or spawn had increased in size, and some of them will, I hope, bloom next year. I did not top-dress this year with manure as I had previously done, but with cocoa-nut fibre, so as to prevent evaporation, and the character of the season was such that I had not occasion to water the beds once. One of the most curious facts that I observed was this: it is now ten years or more since I planted some where I now have my Roses. As is always the case in taking up, some cormlets are knocked off in harvesting. Every year some of these have made their appearance, and have often fair good spikes of bloom; but this year one, which was evidently *Antigone*, threw up three splendid spikes, and I harvested three sound corms. It will be remembered that during this time we have had the two severest winters of late years, and the series of wet and unfavourable seasons culminating in 1879, and yet they flourished all through these seasons. This might suggest the leaving them in the ground all the year, but a trial I once made of this did not encourage me to try it again. It is one of those things which "no fellow can understand." I have noticed also again this year that a plant which has thrown up two stems and formed two fresh corms, one of them has been diseased and the other sound. Just as with Potatoes; you will find on the same haulm some utterly bad and others perfectly sound, while seedlings that have never bloomed also oftentimes decay and are lost.

Taking these things into account I must still hold that the growing of the Gladiolus is a perfect lottery. I have seen and heard of most of the collections grown in this country, and the only person who seems to me to be thoroughly successful is "W. J. M." of Clonmel; and yet, knowing the rainy character of the Emerald Isle, I should not have thought it favourable. I know how many growers have suffered there, and thereby "W. J. M." is exceptionally fortunate. He attributes a great deal of his success to storing; but if a corm is sound when lifted it keeps so, if unsound nothing will cure it.

I have before alluded to the cutting the corms previous to planting, so as to increase the stock. I did so again last year, and found that some of the largest were those formed on the cut corms. I would, therefore, advise all intending planters to examine them, taking off the outer jacket, and, when two fresh eyes are observed, cutting the corm in two, so as to secure one for each piece, precisely as would be done in the case of a Potato; and in the case of new or scarce varieties it commends itself especially to those who cannot afford to purchase more than one bulb of a sort.

As to varieties, I have lately given a list to a relative who wanted to order some, and it is astonishing, in looking through the list of French sorts, how few come up to the standard of excellence one has set. I give the list:—Baroness Burdett Coutts, Rayon d'Or, Murillo, Horace Vernet, Archduchess Marie, Christine, Shakespeare, Madame Desportes, Le Vesuve, Dalila, Jupiter, Africain, Flamingo, Norma, Pasquin, Caprice, De Merbel, Victor Jacqueminot, Flamboyant, Opale, Comice, Mdile. Marie Verdalle, Madame Marie Mies, De Lesseps, Mabel, Mount Etna, Eclair. Of those of in 1882 and 1883 the following are, I think, the best:—

ABRICOTE.—Very fresh apricot colour, lightly shaded with lilac; somewhat late in flowering, vigorous and hardy.

ARABI PACHA.—Very lively scarlet, with large white spot.

GRAND ROUGE.—Splendid spike of scarlet-red flowers with small violet spot. A magnificent and effective plant.

NEREIDE.—Long and close spike, large, of a shaded rose colour. Magnificent and delicately coloured plant.

It is with no disparagement of Mr. Kelway's flowers that I have not enumerated any of his, but in truth I know but little of them. Duchess of Edinburgh is a grand but very late flower. Lady Bridport is a good useful exhibition flower. But his varieties are so numerous that one gets bewildered amongst them, and the varieties brought out last season were probably exhibited some six or seven years ago. I have only written of that which I know.—D., Deal.

NOTES ON SARRACENIAS.

THE present time is the proper one for repotting these plants preparatory to their being placed in a warm house to make their growth. If the plants are healthy and strong, and the compost in which they were planted last year is in good condition, a top-dressing of fibry peat and sphagnum moss will be sufficient for them this year. In most cases, however, it will be found that the effect of copious and

frequent supplies of water during the whole of last year has been to decompose the soil and make it unfit for the plants to remain in it a second year. Should it be decided to repot them it will be found a good plan to turn the plants out of the pots and immerse the ball in a tub of water, the effect of which is to loosen the soil, which, by rubbing it gently with the hands, is readily removed from the thread-like roots. Unless this is done it will be difficult to shake the plants out of the old soil without breaking off a large number of roots, thereby running the risk of weakening the plants. Although many cultivators prefer to leave the old leaves and pitchers on the plants until the new growth is made, it is a good practice to cut away all shabby leaves, leaving one or two of the best to each crown.

For compost peat in small pieces, with a portion of the small matter shaken out, sphagnum moss, and crock dust form a mixture such as *Sarracenia* delight to root in. Either pots or pans may be used, half filling them with drainage. As the *Sarracenia* are surface-rooting plants it is necessary that the pots or pans in which they are to grow should be sufficiently large to afford room for the roots to ramify freely near the surface of the soil. The crowns should be planted just level with the surface, and the mixture pressed in firmly. Apply water liberally when the potting is completed. A position near the glass, in a house with an aspect which will catch the sunlight all day, and where the temperature can be kept above 50° during cold spring nights, are the requirements of *Sarracenia* during their growing season. It will be unnecessary to ventilate unless the temperature of the house rises above 80° with sun heat; for although these plants do not like fire heat, the heat of the sun is necessary to their making large well-coloured pitchers.

The syringe should be used twice or thrice daily, and a good saturation with tepid water at the roots should be given every morning, *Sarracenia* being almost aquatic in their habits, and therefore requiring frequent waterings at the roots. Never mind about the plants being wet, the water is required all the same. As the pitchers ripen a weak solution of cow dung is useful in assisting their development and colouring. When growth is completed more air may be given. Cold draughts, however, must be carefully avoided, or the pitchers will soon suffer. Green fly attacks these plants, especially during the infancy of the pitchers; and as much harm is done by even very few of these pests, it is a good plan to fumigate the plants with tobacco smoke about every fortnight. *Darlingtonia* may be successfully treated as advised for the *Sarracenia*.—W. W.

POSTAL BOXES.

THE magnitude of the trade in plants now conducted through the parcel post, and the commendable custom that has increased so rapidly of late, has excited the ingenuity of manufacturers in producing boxes of various sizes for the purpose in question. Samples of some of these boxes are before us. The first received was the "unique" folding box of Mr. Thomas P. Bethell of Liverpool. This is made of cardboard, and can be flattened out and prepared in a moment in the form of a box rigid and

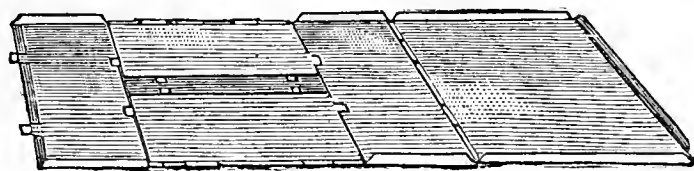


Fig. 50.

secure. This is the lightest of all, but the larger sizes especially are not sufficiently strong for rough usage.

The Patent Package Company, Fenchurch Street, London, sent us a sample of a wooden box, strong, yet not heavy, simple and effectual for the purpose for which it is made.

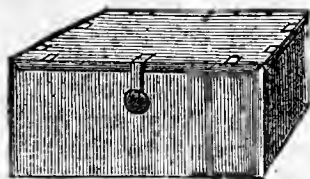


Fig. 51.

The Collapsible Packing-case Company, Weybridge, manufacture their boxes of tin on the ground that they thus possess strength, lightness, portability, security, and economy, and the example before us shows that their claim is well founded. The boxes when open

(fig. 50) can be packed away like so many sheets of tin, while when closed (fig. 51) they form fitting receptacles for plants and flowers.

ABUTILONS IN SMALL POTS.

MUCH can be done with the *Abutilon* with but very little trouble. We have plants raised from seed sown last spring, which have made remarkable growth in 5-inch pots, being now fully 3 feet in height, some furnished to within 9 inches of the pot and about 18 inches through. These plants have been in flower since the first week in November, and are now showing scores of flowers, in some instances two on a stalk.

They have been grown in a temperature of about 55° by day and 50° at night, allowing more with sun heat, which we have had but very little of since November; the soil used was good mellow loam. They have also

received good supplies of Clay's fertiliser, in which they evidently delight. The plants have been kept in saucers since they became root-bound, as, if the roots are allowed to become dry, the plants will be sure to lose their foliage and flower buds also. The seed was obtained from Messrs. Cannell of Swanley, and some of the seedlings are very good indeed, especially a pale primrose, which is very prolific.

I purpose giving the plants a good shift and growing them outside during the summer months, not allowing them to flower till the autumn, when I expect them to be useful for the winter months.—J. P., *Summerhill*.

PLANTS AND FLOWERS OF THE PAST AND PRESENT.

LOOKING over an old copy of the "Scottish Gardener" to-day I was much struck with the difference of plants then cultivated compared with those which now adorn our hothouses. This difference was most vividly brought to my mind on examining the prize list of the Caledonian Horticultural Society's Show for the year 1857. Among the plants comprised in the winning collections of stove and greenhouse plants were the following:—*Leschenaultia formosa*, *Pimelea spectabilis*, *Pultenaea stricta*, *Calceolaria violacea*, *Podolobium triangulare*, *Mahernia incisa*, *Tetratheca verticillata*, and many others which it is needless to enumerate. Amongst Cape Heaths I also noticed a good many strange names. The same may also be said about Pansies, Dahlias, and several other florists' flowers. In fact, among the twelve varieties which composed the first-prize lot of Pansies I did not recognise one familiar name. I do not wonder so much at the changes which have taken place amongst florists' flowers, but what has become of the good old hardwooded occupants of the stove or greenhouse, the successful cultivation of which was, I understand, the gauge by which a gardener's abilities were measured? Has the advance of horticulture and floriculture given birth to better and more useful varieties, so that the older sorts have had to yield to the rule of survival of the fittest, or have they become the victims of popular taste, by which the more showy and easier cultivated softwooded plants have gained the day? I know that occasionally these old favourites are to be met with, but only in some secluded spot where such things are carefully looked after and treasured as relics of the good old days. Doubtless there are many readers of the *Journal* who can look back to the days when such plants as those I have named were popular everywhere, and who have watched, perhaps sadly, the gradual encroachment of the modern usurpers, if I may use the term. Mayhap some of them will be able to tell us if, after all the progress that has been made in gardening, any improvement has been made in this branch of it.—CALEDONIAN.

SPORT'S PHYSIOLOGICALLY CONSIDERED.

THE following paper was read by Mr. J. W. Talbot last year before the Massachusetts Horticultural Society, and is published in the last part of their Transactions.

"To call a natural phenomenon a *sport*, is to admit our ignorance of the natural laws by which it was produced. To be satisfied with that term evinces a willingness to remain ignorant. But such phenomena are very common. When, for instance, a branch upon the stock of a Rose, or any other shrub or plant, produces a blossom essentially different from the others, it is called a sport. When, in grafting, the result is different from what we had reason to expect, we call it sporting. When the green-leaved Laburnum was budded with the golden, and the shoots below the bud, and even those from the roots were variegated, the new variety thus obtained was called a sport. So, when the yellow-striped Jessamine was grafted on the white, and the smaller-leaved Abutilon was grafted on the larger-leaved, the two new varieties thus obtained were called sports. When, in Amherst, N.H., a large Baldwin tree, originally grafted near the ground on a Russet stock, threw out a shoot 20 feet above the graft, bearing Apples that seemed to be a cross between the Baldwin and Russet, it was called Whiting's Sport, after the owner. Tradition tells us that more than a century ago buds of the Golden Sweet and Rhode Island Greening, being split and their halves united, produced the well-known Apple, one side of which is sweet and the other sour. This Apple has always been called a sport. These are a few of a large class of phenomena which, appearing to be contrary to natural laws, have been called sports. The term, however, is an unfortunate one. Nature never sports. All her laws are immutable. It is only when we cannot comprehend that she appears to sport.

"Cases like the above, connected with grafting, cross-fertilising, or hybridising, will never be perfectly understood until men better understand the laws of vegetable anatomy and physiology. The advance made in this direction within a few years has already explained many of the mysteries of former times; and is it not reasonable to expect that scientific men, availing themselves of past discoveries, with the improved apparatus and opportunities of the present, will soon be able to trace what are now called sports to natural causes? But let us bear in mind that the practical man, who carefully observes and records natural phenomena, may be the scientific man, whatever he may be called.

"The better to learn the origin and understand the nature of sports I wish to call your attention to a few familiar but well-established physiological facts and truths. It is not long since the most absurd and contradictory views prevailed in regard to the circulation of the sap. That most trees and plants derive a large part of their nourishment from the soil will not be questioned. Nearly all writers of note now admit that the crude sap ascends from the roots, through the sap wood, to the upper side of the leaves, where it is elaborated by coming in contact with the air, exhaling the superfluous water and oxygen, and inhaling carbonic acid. It then passes into the veins on the under side of the leaves, to be conducted into the chlorophyl vessels in the bark, where it is digested and assimilated on its way into the cambium, where it forms the protoplasm or life principle which

circulates to every part of the plant, much as the blood circulates in the animal system. So well are botanists and physiologists agreed upon this subject that controversy has nearly ceased. From this we obtain an idea of the source of the protoplasm, which originates not only all sports but all growth in plant life.

"Another class of well-established facts which we must understand before we approach the subject of sports relates to the cell structure of plants. All plants originate in, and are composed of, minute cells. Every natural plant or tree came from one parent cell, which had the power of multiplying itself and building up the whole plant or tree. From every parent cell in a plant or tree, whether in root, branch, bud, or leaf, may be developed another branch or tree, which will be true to its kind. No natural plant or tree can of itself alone ever change its kind. On this fact depends the permanency of varieties. Keeping these facts in mind, we will now consider the formation of the cells. All writers admit that every cell is formed in the cambium by the protoplasm. According to their description, the protoplasm is one of the most wonderful agents in the world. They assure us that it has an inherent power of motion as persistent and independent as the beating of the heart, and even more so, for, while the heart is always confined to the same relative spot, the protoplasm changes its locality and performs various kinds of motions, and seems to be endowed with a wisdom to foresee and plan, and a skill to execute the most varied operations. It not only forms the cells, but changes their forms to make tubes and vessels, woody fibre, bark, buds and leaves; secretes the gum, starch, sugar, and all the materials that enter into the composition of plants; produces the most delicate blossoms, the most delicious fruits, and finally, to perpetuate its kind, inserts in every specimen of fruit a little embryo of itself in the well-protected seed. All this is ascribed to the protoplasm. Men witnessing this wonderful display of wisdom and skill everywhere seen have called it Nature, and bowed in reverence; but let us rather view it as the handiwork of the Infinite One, whose wisdom designed, whose power executes and upholds, and whose boundless love pervades the whole. Or with the poet, exclaim,—

'All are but parts of one stupendous whole,
Whose body Nature is, and God the soul.'

"But that protoplasm is the agent by which all vegetable growth is carried on must be admitted. By the improved microscope we can actually witness the wonderful process. We can see the first step toward the formation of a cell. We can see the protoplasm in the cambium, as it forms itself into a little globe or ball to become the nucleus of the future cell. We can see it begin to rotate and take form, as it secretes the substance with which it surrounds itself with a cell wall as perfect as the shell of an egg. Thus the nucleus, the cell sap, and the cell wall constitute a parent cell. The nucleus is simply living protoplasm, which, as soon as the first cell is completed, divides itself into two parts, each taking an end of the cell, begins its rotary motion, divides the cell wall, and from the half each forms a new cell as perfect as the first. Thus from one cell two are formed, each to be again divided, and thus on to infinity. But when a sufficient number of cells are formed, one above another, a new work commences, with which we are particularly interested. The protoplasm in the perpendicular row of cells begins to absorb the transverse septa or end walls which are in contact with each other; and joining the side walls together forms tubes or sap vessels; then, passes up through the tubes thus formed and uniting, recommences its work of cell-building to complete the plant or tree. It is the union of the protoplasm or the contents of these cells as it absorbs the cell walls between them and recommences cell-building, that gives the key to the origin of sports."

(To be continued.)

THE INSECT ENEMIES OF OUR GARDEN CROPS. THE CHERRY.

THOUGH not prepared to give statistics in the matter, I venture to assert that the production of British Cherries has hardly increased of late so as to rival the production of other fruits which are in greater demand than formerly, owing to the growth of our population. I do not mean to say that the attack made upon the Cherry by some medical authorities on the plea of its unwholesome nature has had any notable influence; it is rather the effect of a considerable importation of this fruit from the continent. Then, again, our Cherry orchards have suffered very much in recent years through unfavourable springs; and in Kent, doubtless also elsewhere, much damage has been done by the severe gales we have had since 1878, many old but good-bearing trees being uprooted or losing some of their branches. With regard to the insect foes of the Cherry, the reports published do not show that they usually cause any great loss of fruit. They are, however, somewhat pertinacious, and in 1872 and 1873 no little stir was occasioned by the appearance and abundance of the "slugworm," a creature that is one of those insects which have naturally a repulsiveness about them.

We have accused America of sending us a blight, that all our efforts cannot entirely free our Apple trunks; also, and for years past, we have been in fear that the American Potato beetle will yet make a settlement here, and some persons have also been very positive that the "slugworm" came somehow across the Atlantic about ten or twelve years ago. It is true that the best account given of it was written by Prof. Peck at the close of last century, and published in Boston, U.S., but the insect (or some of them, for there are various species) was known in Europe long before then. Fabricius, Reaumur, and Linneus all observed these slimy larvæ of sawflies, though in some respects

they mis-stated their habits and history. Even now we are doubtful as to the specific boundaries. The late Edward Newman, for instance, thought that under the general name of *Selandria æthiops* (figs. 52 and 53) might be included the various larvæ observed in the Pear, Sloe, Plum, Cherry, and other fruit trees. It is certain, however, the species are more numerous than he supposed. Thus the Cherry pest, *Selandria* or *Blennocampa Cerasi*, is sufficiently marked out as distinct; and one of its peculiarities is that the full-grown grub does not descend to the ground, but forms a gummy cocoon upon a twig of the tree. Within this the pupa reposes through the winter, and it is obvious

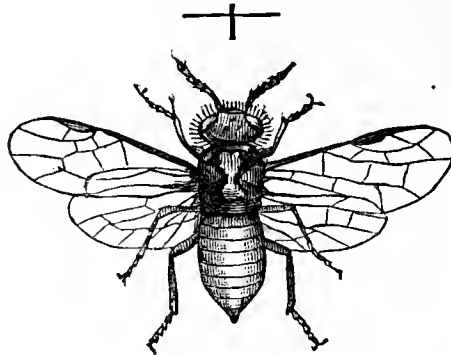


Fig. 52.—Imago of *Selandria æthiops*, Newman (magnified).

that no amount of syringing is likely to kill it or stop its development.

The flies emerge during June. Of the female insect the entomologist above mentioned writes in his original way—"Her first thought is matrimony; her second thought, or instinct, is preparing for a family. She is always in mourning; even before matrimony she wears the sable garment of widowhood. Her head, antennæ, body, and legs are almost entirely clothed in black. Her wings, otherwise colourless, bear a blackish shade across the middle." Her partner is of similar appearance, and in both sexes we find the habit of shamming death when alarmed, the fly falling as if insensible, with the limbs closely folded together. The eggs are deposited upon the leaves of the Cherry in a small slit made by the parent by means of her ovipositor, each separately. It is a singular circumstance that, from their having a shell of elastic material, these may be seen to increase in size before hatching. From their minute size and pale colour



Fig. 53.—Larva of *Selandria æthiops*, Newman.

the young larvæ are hardly discernible by the unaided eye, and before long they begin to be coated with the thick slime of blackish brown, which originated their popular name. This has an unpleasant smell, though not always noticeable. These slugworms have, in fact, the numerous feet possessed by most larvæ of sawflies, by the aid of which they glide slowly over the leaves, but these organs and the shape of the body are quite hidden by their protective coating. Perhaps owing to this the insects escape partially from the attacks of birds. In feeding they confine themselves to the upper surface of the leaf, keeping near the centre and avoiding the veins. Cherry trees are not only disfigured but rendered sickly by a visitation of these larvæ, upon which syringing and similar modes of treatment have very little harmful effect. The best plan of operating upon it appears to be that of dusting the leaves well with quicklime directly it is observed, as this adheres to the slugworm and speedily kills it. In America, however, it is usual to apply powdered hellebore mixed with water, which compound is thrown upon the trees from above. I would not myself be inclined to advise this remedy for general adoption; indeed it might be dangerous at the time the fruit is setting, unless washed off very copiously.

More than one species of aphid occurs upon the Cherry. The most abundant and hurtful kind is the too well-known "black fly," or *Aphis Cerasi*, conspicuous by its black hue through the

greater part of the season until autumn develops an egg-laying brood, with brown females and brownish yellow males. From these eggs appear the young aphides of spring, and gardeners are rather apt to neglect looking after these until they are troublesome to check. Mr. Taylor has advised diligent syringing before the bloom of the Cherry opens. The solution he recommends is that compound of soft soap, petroleum, and water, the formula for which has been repeatedly published. This is to be applied in the form of a gentle spray to the trees, and also the walls if needful. Quassia water, tobacco water, and other recognised remedies for "fly" have their advocates. It is sometimes necessary, where the pest has been let alone, to cut off freely those shoots on which it swarms.

Some caterpillars of moths occur upon the Cherry. One that is decidedly injurious is that which produces the small ermine moth, *Yponomeuta padella* (fig. 54). This species is not confined to the Cherry, but is, in most years, abundant on the Hawthorn, and visits also other fruit trees, the Apple, for example. It is doubly a nuisance in its larval state, from its not only devouring the leaves of the tree so voraciously, but overspreading the branches besides with a mass of web which is unsightly, and checks the growth of the buds. Yet few natural objects of its size are

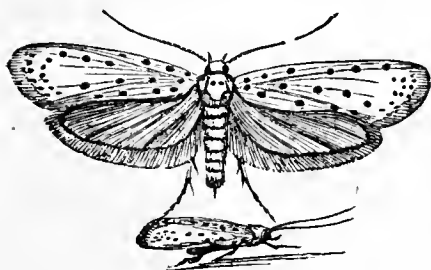


Fig. 54.—Small Ermine Moth, (*Yponomeuta padella*).

more beautiful than is this little moth, whose satiny glossy fore wings of white, shading into a delicate grey, are dotted over with about thirty black spots, the hind wings being dark brown. The caterpillar has a resemblance to the moth in the matter of colour. When adult it is whitish, having numerous black points scattered over the body. There are few indications of these caterpillars during early spring, when they burrow within the young leaves; but in May they show themselves upon the masses of web which they spin in company, and if unmolested will very soon strip an ordinary sized tree of its foliage. Having fed up they then spin each a silken cocoon, under the protection of the general web, and the moths emerge about the end of June. Their eggs are deposited soon after, under a patch of gum, and the caterpillars hatch in the autumn, though they do not begin to feed till the next season. It is difficult to find these upon the branches, but syringing or washing would probably remove some of the caterpillars from their hiding-places while young. As they, when older, drop readily on any alarm, the trees may be well shaken, and the fallen caterpillars removed and burnt, or the webs may be cleared by handpicking. It has been recommended to drench the trees well with a decoction of quassia at the time the earliest caterpillars are noticed, and as almost the whole brood of moths emerges together, syringing when they are first seen will kill many as they leave the chrysalis if any of the webs have escaped.—ENTOMOLOGIST.



HARDY FRUIT GARDEN.

Shelter.—Taken in its full sense of protection from frost and cold cutting winds for the tender blossom of fruit trees, shelter resolves itself into two distinct parts—the first permanent, in the form of walls, hedges, and tree belts; and the second, temporary and portable, consists of mats, netting, tiffany, and similar light materials. The best form of temporary shelter is that which can be used at night and removed by day. This plan, however, involves much labour, and generally preference is given to any contrivance that can be left over the trees till the fruit is safe. For wall trees this may be managed by broad coping-boards, from the outer edge of which Nottingham netting is stretched downwards over poles thrust into the ground and fastened to the coping so as to avoid all risk of the blossom being battered by the netting during the prevalence of high winds. In bleak exposed positions the netting may be doubled without keeping the light from the blossom in a hurtful degree. A double covering of this light hexagonal-meshed netting has repeatedly answered so well as a means of protection that we strongly recommend its use also for espaliers, pyramids, and bushes, over which it is stretched upon a light yet strong framework of wood. A little dried fern litter scattered over the tops of Gooseberry bushes now serves to protect the young foliage and blossom from injury by

frost. We have been obliged to put netting over the hushes to keep off hullfinches, and the fern is kept off the bushes by it.

Now is the best time to see if the permanent shelter is as efficient as it ought to be. Walls are too expensive to be extended indefinitely, but hedges of Thuja Lobbi are not, and they make such admirable wind screens—growing quickly even in a poor soil—that there should be several intersecting each other in all large fruit gardens. For enclosing a small fruit plantation they answer better than any other tree. There is still time to plant them if due care is taken both in the transplantation and in carefully mulching them with litter, or better still with rough half-decayed manure. Let the provisions of means of shelter extend beyond the garden, and make good any want of tree shelter, by planting thick groves or belts of Spruce, Silver, and Larch Fir upon the north and east sides. Let, also, the baneful effects of cold cutting north-eastern winds and of late frost in valleys at this season of the year not be forgotten if you are selecting the site of a new fruit garden, and if possible choose a sheltered sunny south-western slope for the purpose.

FRUIT-FORCING.

VINES.—Early Houses.—If the remains of the fermenting materials ought to be removed from the inside borders before the Grapes begin colouring, leaving only sufficient for a mulch, and giving a thorough soaking with tepid liquid manure. The mulching will keep the roots active near the surface and prevent evaporation. Maintain a good moisture in the atmosphere by damping well at closing time. Allow a fair amount of lateral extension, which will materially assist the Vines in swelling off their crops, but do not allow growth to be made which must afterwards be removed in quantity.

Succession Houses.—Continue disbudding, tying, and stopping, allowing two joints beyond the show of fruit, and the laterals may be allowed to make as much growth as there is space at command without crowding the principal foliage, which, under any conditions, must have full exposure to light and air. Thinning the bunches must be attended to in good time, commencing with the freest setting varieties as soon as they are out of flower, having previously removed all surplus and ill-shaped or imperfectly fertilised bunches. This needs some judgment and not a little firmness, as a great crop is sometimes sought for the sake of appearance, which can only be had at the expense of the Vines, and mostly results in bad finish. Where Grapes are setting keep up a circulation of dry warm air, but avoid currents or draughts, especially of cold air. Should the bunches exhibit by curling a disposition to run into tendrils, which is not infrequent when the wood has not been properly ripened, the moisture should be reduced and the temperature kept a little higher. When Hamburgs are in flower a minimum temperature of 65° at night and 70° by day should be accorded, and for Muscats it ought to be 5° higher. Gently shake the Vines occasionally to liberate the pollen, and pass a camel-hair brush over shy-setting varieties, using pollen from Black Hamburgs.

Late Vines.—When these have started into growth gentle fire heat will be necessary to keep them in steady progress. Vigorous young canes do not break freely, hence they should be brought down to a horizontal position to prevent a rush of sap to the terminal bud, and when all the eyes have started they may be tied up to the wires. Syringe twice a day, but sufficiently early to allow the Vines to become dry before night. Admit a little air at 70°, and encourage a free growth by closing with a humid atmosphere at 75°. Late houses of Hamburgs should be allowed to start naturally, keeping the houses freely ventilated above 50° for the present.

Vines in Pots.—Give liberal supplies of liquid manure to those swelling-off their crops of fruit, and renew the top-dressing where necessary. When the Grapes commence showing colour allow a circulation of warm rather dry air constantly, but do not lessen the moisture all at once, but gradually, as the Grapes swell considerably in finishing, and must not lack moisture at the roots nor have a dry parching atmosphere. Pot young Vines from this year's eyes as they break into free growth, plunge in gentle bottom heat, keeping them close and moist for a few days, and when they have taken to the new soil fully expose to sun and light.

Melons.—The earliest plants in a heated house are now swelling-off their fruits, and have been earthed-up. Do not allow the growth to extend much, but stop, tie, and thin out the shoots so as to prevent overcrowding. Remove all blossoms from plants swelling-off their fruit, and finally earth-up if it were only partially done when the fruits commenced swelling. See that the plants do not suffer from insufficient supplies of water, and when the roots are working freely in the fresh material afford copious supplies of tepid liquid manure, being careful to keep it from the stems of the plants so as to avoid canker. Maintain a bottom heat of 85° to 90°, and keep the day temperature at 75°, and between 80° and 90° from sun heat, closing at 85°. Ventilate early avoid cold currents, and syringe twice a day, damping well before nightfall, but be careful to have the foliage dry. In succession houses attend to stopping, tying, and regulating the growth, avoiding overcrowding, impregnating the blossoms on fine days, and stop one joint beyond the fruit.

PLANT HOUSES.

Chrysanthemums.—Those who grow these plants for decoration should strike a good batch without further delay. Select for the cuttings good vigorous shoots, which may be inserted singly in small pots and placed in a temperature of 50° to 55°, where they will soon form roots. They can either be placed under handlights or not as long as the cuttings are

shaded from strong sun. As soon as roots are formed the plants should be plunged into a hotbed prepared in a frame, where they will receive gentle heat for a time. By this system the plants are not checked in being removed from warm to cool quarters, for they are gradually prepared for cold frame treatment as the heat of the bed declines. Gentle heat afforded the plants by this means is very beneficial; if air is carefully admitted they will grow strongly. Before they are plunged in the hotbed the young plants should be transferred into 4-inch pots; employ as compost good loam, a little leaf mould, and coarse sand.

Roses.—Perhaps at no season of the year are *Roses* indoors more subject to mildew than about the present time. The sun is getting more powerful, and air often has to be admitted when the wind is cold. Every precaution must be taken to prevent cold draughts, for nothing will cause this destructive parasite to establish itself sooner upon the foliage. The plants should be diligently syringed with the softsoap mixture recommended from time to time, and if mildew appear add a little flowers of sulphur to the softsoap water, and if one application does not prove effectual syringe for two or three days in succession with the same mixture.

Those who force these plants early will now have wood in good condition for cuttings, which root quicker when scarcely half ripened. Two joints are ample for the cuttings, and both leaves should be left upon them, the top eye only being left above the soil in which they are inserted. The cuttings must be inserted as quickly as possible after they are severed from the plants. They can either be covered with bellglasses or placed in a box covered with glass, which will do equally well if rendered air-tight. If a good watering is then given no more will be needed until they are rooted, which will be in about three weeks. The boxes or pans containing the cuttings should be placed in a temperature of 60° and kept shaded from strong sun. Air should be gradually admitted after they are first rooted, and then the young plants may be transferred into 3-inch pots. They should be grown in heat for a time after they are rooted until they are established in their first pots, and then be placed in an intermediate temperature. It is surprising what fine plants can be produced by autumn from cuttings inserted now, and quantities of buds will be produced from such kinds as *Safrano*, *Niphetos*, *Madame Falcot* and others. The Hybrid Teas are also very good for this purpose, especially *La France* and the *Hon. George Bancroft*. *Gloire de Dijon*, *Maréchal Niel*, and others of similar growth will, if well grown in 10-inch pots, give abundance of fine flowers early next year. No *Roses* give better returns than the last two mentioned when grown on annually for forcing early.

Deutzias.—Few flowering plants are more useful for forcing than this hardy shrub, and the young tender shoots will root freely and quickly at this season of the year. The points of growing shoots about 2 inches in length are the best for cuttings, which should be inserted thickly together in pots or pans covered with bellglasses, or placed in a close frame and kept shaded from strong sun, and in about a fortnight they will be well rooted. After they are rooted, and before their roots become matted together, plant them out in boxes or large pans about 2 inches apart. Grow the plants in gentle heat and pinch the young plants to keep them bushy. They can afterwards be planted outside about the end of June, or placed in small pots and grown on, the former being preferable, as, when planted out, they need less labour. Plants rooted now will in two seasons be fine specimens in 5 and 6-inch pots for forcing.

Prunus sinensis.—The double form is one of the best plants we possess for forcing, very little heat being needed to bring them into bloom, and a good succession can be maintained by introducing them into heat at intervals of a few weeks. Those that have flowered will have good cuttings upon them, which root freely if slipped off with a small heel when about 2 or 3 inches in length. The cuttings may either be placed together in pans or pots and covered with bellglasses, or about three may be inserted in small pots in a close frame and then grown on together without disturbing them. This plant requires the same treatment as *Peaches*, and will grow luxuriantly in heat and moisture, but requires to be well ripened to bloom them well. Cuttings rooted now in small pots and grown on without being disturbed at their roots, will in one season make good flowering plants; but in two years they will make fine specimens large enough for all decorative purposes. This shrub thrives better in pots than planted out.

THE FLOWER GARDEN AND PLEASURE GROUND.

Methods of Propagating Bedding Plants.—There are various methods of striking cuttings of such bedding plants as *Verbenas*, *Heliotropes*, *Ageratums*, *Iresines*, *Marguerites*, *Coleuses*, *Alternantheras*, *Fuchsias*, and *Konigas*, these being adopted according to circumstances. Where large numbers are required, the room for propagating being proportionate, boxes about 24 inches long, 15 inches wide, and 6 inches deep are the most suitable for the purpose. These should be well drained, about half filled with a fine compost, and surfaced with silver sand. The tops of young growing shoots to be trimmed and dibbled in so as to just clear each other, watered in, and covered though not touched with two squares of glass. They may be stood on either the beds, stages, or floors of the forcing houses, but not where they will be too quickly dried by the hot-water pipes. If strips of paper are pasted over the edges of the glass so as to exclude all air from the cuttings, they will strike still more quickly and surely. Where the conveniences for propagating are limited much may be quickly done with saucers filled with sand and water, these, when filled with cuttings, being stood on the troughs of the hot-water pipes. Very few cuttings will fail to strike quickly in this manner, but care must be taken to use light well-warmed soil when boxing and potting

them, or some will not grow. Frames on hotbeds are largely employed for propagating purposes, and here the steam arising from badly prepared heating materials is most destructive. Well-drained pots and pans are better than boxes in this case, and good light sandy soil should be used. Avoid crowding the cuttings, and do not cover with glass, otherwise they are more liable to damp. Small frames may in some cases be easily extemporised over the boilers, or at the warmest corner where an angle is formed with the pipes, the latter to be surrounded with brick rubbish, and over this placed a good depth of cocoa-nut fibre and decayed tanners' bark or sawdust. This material should always be kept moist, and the cuttings may either be dibbled into this or it may serve as plunging material for pot and pans filled with cuttings. No air to be given unless for a short time in the morning to check damping. In every case the cuttings should be put in quickly in order to prevent their flagging badly, and should always be carefully shaded from sunshine.

Verbenas.—If there is a good stock of these, propagating may well be delayed, as they strike quickly and are better for being kept growing without a check. They should be grown without much fire heat, otherwise they quickly become infested with aphides, thrips, and red spider. *Verbenas*, including the useful *V. venosa*, can easily be raised from seed sown in pans and placed on a hotbed, and of the former many good sorts may be obtained from one packet, but, being strong growers, are best planted in a group. If any of the long fleshy roots of *V. venosa* have been preserved these should be cut into lengths with two joints and dibbled thickly in boxes or pans of good soil. Placed in a mild hotbed or in a forcing house, they are soon fit for planting out in a frame or in boxes, where they will grow to a good size by the time they are wanted.

Lobelias.—The ordinary bedding *Lobelias* are best propagated by division and cuttings in preference to seedlings, the latter rarely being sufficiently neat-growing. *Bluebeard*, *pumila magnifica*, and *Brighton* are all excellent blue sorts, and supposing a number of plants of either of these have been wintered in boxes in a rather low temperature, on being introduced into an early vinery or in a moist heat every shoot will quickly emit roots. These may be pulled off and dibbled in rather thickly in boxes and eventually bedded-out in cold frames, or, if a little bottom heat is available, these divisions may be placed on beds of good soil and about 4 inches apart each way, where they will soon grow to a good size, the frame or lights being then available for other purposes, some other protection being provided for the *Lobelias*. Thousands of good plants may thus be raised without much trouble. Seedling *Lobelias* should be pricked out before becoming crowded and weakened. The herbaceous sorts may be divided when the suckers are well above the soil.

Succulents.—Excessive moisture proves fatal to these, especially when the cuttings are first inserted. If it is intended to strike the tops of *Echeverias*, *Sempervivums*, *Pachyphitons*, or *Kleinias*, after the lower leaves are trimmed off they should be laid on warm shelves till the cuts are healed, when they may be dibbled into well-drained pots or pans of sandy soil and stood in the full sunshine and in heat, only sufficient water being given to prevent shrivelling. Preserve the old stems, as these will furnish a number of side shoots. *Kleinias* may also be increased by division, and the *Agaves* are similarly propagated. None of them require a very strong heat to grow in, and the popular *Sempervivum tabulaforme* grows the most freely in cold frames. The tops of *Mesembryanthemum cordifolium variegatum* may be dibbled in thickly in pans of sandy soil and stood on warm sunny shelves and kept rather dry. Moisture and shade does not suit them, and the stock plants should be grown in the full sunshine, and then the cuttings will be harder and less liable to damp off.

Annuals for Early Blooming.—Sweet Peas and *Mignonette* are always acceptable, and an early supply may be obtained by sowing a few seeds in pots and planting out when properly hardened off. The handsome new varieties of the former should all be sown in this way, the few seeds contained in a packet being too valuable to be risked in the open ground where mice and slugs are waiting for them. Make the soil firm for the *Mignonette*, and if 3-inch pots are used do not leave more than three plants in a pot. Candytuft similarly treated will also afford a quantity of early bloom. All three may also be now sown in the open, and if a row of Sweet Peas be sown with the culinary sorts and carefully staked a remarkable quantity of bloom will eventually result.

THE BEE-KEEPER.

SEASONABLE NOTES ON BEES.

THE time has now arrived for us to make good our promise to give an account of what we are doing with our bees. Before doing so we would call attention to one or two errors in the punctuation of our last article, which caused it to read otherwise than we intended. At the bottom of page 176 it should read thus, "Does not care for their stings, in season and out of season exposes them," &c. Again on the top of page 177 it should be thus—"Open to inspection from end to end and at any moment, the temptation," &c.

We had in the week ending March 8th two or three most beautiful spring-like days, with warm sunshine and little wind. These are the days to choose for overhauling hives, and we have taken advantage of them to ascertain the strength and condition of each and every colony. We particularly wish to write these instructions for those

who are beginning bee-keeping, and must therefore ask pardon of those readers to whom the advice will be only a repetition of former teaching. It may be supposed that a colony of bees had been carefully wintered in a bar-frame hive; that the owner has followed the plan of proceeding explained from time to time in the Journal, keeping his bees as quiet as possible up to the present time, only seeing that there has been a sufficient supply of food within easy reach of the cluster. He has paid particular attention to the comfort of the bees by wrapping them up warm, and by narrowing the entrance to the hive in order to exclude as much cold air as possible.

It is now wished to set to work earnestly to build up this colony into a powerful army of honey-gatherers. Let him see that his smoker is in a clean and serviceable condition, and that he has a good supply of properly dried fuel for the same. We use nothing but decayed wood, well baked in an oven and then stored for use. Brown paper tied in rolls of convenient sizes is also a good fuel for the purpose. Besides the smoker a long knife, such as a thin carving knife, is useful to have by one's side for the first inspection of a hive after winter. Bees will sometimes throw buttresses from comb to comb, or attach the frames to the sides of the hive, and we wish to sever these attachments with as little jarring of the combs as possible. Some syrup should be in readiness, made of 1 lb. of sugar to half a pint of water, a sprinkle of salt and a dessert-spoonful of salicylic acid solution. A feeder which can be regulated to a very small allowance in the twenty-four hours will be required. Light the smoker and proceed to business.

Double back the quilts one by one from the front part of the hive, standing behind the hive. A few puffs of smoke, delivered on and between the combs exposed to view, will send most of the bees to the centre combs. We then push back the dummy towards the front wall of the hive and gently lift out the first frame. In a similar manner we inspect the the next frame. If both are very heavy with honey and no brood in them we take away one altogether. We will suppose that the bees are wintered on six frames; we now draw back the quilts still more and expose to view the third comb. Here we shall doubtless find brood, and perhaps the queen will also be seen on this comb. Should there be no brood we must search diligently for a sight of her majesty. Few hives with a queen will now be destitute of brood, and therefore if no brood appear the presence of the queen must be ascertained, and if she be there we must note the effects of the stimulative feeding. Should no eggs be deposited shortly we must consider that she is old and worn out, and shall have to decide upon what is to be done with the stock. But we will suppose that when gently lifting the comb from its position there is a densely crowded mass of bees on it, and in causing some to move aside we see the sealed patches of brood, noting the size of the patch, and quickly restore the comb to its position, drawing back the other comb or combs towards it, and then replacing the divider. A puff or two of smoke drives the bees from off the bars, and we then replace the quilts one by one as they were before. We now commence from the back of the hive; having folded back the quilts we draw the divider to the back wall of the hive, and as before carefully but quickly examine comb by comb until we arrive at the one last examined at first.

By commencing at the front of the hive and re-arranging that before opening behind, we keep the bulk of the bees constantly in the middle, and allow less heat to escape from the brood nest than if the whole of the frames were uncovered at one time during the inspection. When handling the entire combs, if there is much honey around the brood we use our knife for uncapping carefully a small quantity of it near to the sealed larvæ. This action has a double purpose—the bees are stimulated to action by the removal of the honey, which they at once undertake, and at the same time the area of brood nest is enlarged, as the queen will utilise at once the emptied cell for the deposition of eggs. The constant and regular uncapping of honey cells is a potent means of stimulating the breeding powers of a colony, but it must be borne in mind that every care is to be taken not to expose the brood even for a minute or two to a cold wind. It is at this season of the year so easily chilled. Having therefore noted the size of the brood nest, the number of frames covered by the bees, and the amount of food in the hive, it is well to make memoranda of the same in order to refer to them at our next inspection. We find nothing better for the purpose than a small slate or tablet tacked to the inside of the cover where hives are outdoors or placed over each hive in a bee house.

We now leave our hive with every facility for increasing in strength, since there are plenty of vacant cells at the queen's disposal close to the already hatching brood. We must now employ the means at our disposal for quickening the laying propensities of the queen. We shall commence by seeing that there are very thick warm quilts over the frames, and that there is no escape of heat from the body of the hive. Instead of thinking of diminishing the thickness of the wrappers it must now be increased, and since there is nothing to fear from the moisture engendered in the hive (for a hotbed kind

of heat is what the brood requires) we are in favour of crown boards, or some substitute for the same, during the early breeding season. Flat boards are placed over the quilts to prevent evaporation, and feed over these boards.

There are various kinds of feeders (their name is legion), and we leave the bee-keeper to adopt one to his own liking. A steady gentle supply of food is what is requisite, and so given that there is no inducement to robbery offered to the bees from other hives. Care must be taken to spill no syrup about the apiary, and to keep all vessels containing syrup well covered. Mice as well as bees like syrup. The top was knocked off a wide-mouthed bottle containing some syrup, and we found three mice in the same. Bottled mice preserved in syrup is at any rate a novelty. If bees once learn where the syrup is kept, or where it is fed to other hives, it is astonishing with what pertinacity they return again and again to the spot, long after it has been withdrawn.

After the syrup has been given to the stock for a week, say at the rate of half a pint in twenty-four hours, again examine the hive, this time spreading the brood, and gradually continue to do so on each examination afterwards. At first only remove the inside combs of the brood next to the outside of the same—that is, simply reversing their position. This will be followed later on by a greater extension, caused by inserting a sheet of foundation between the combs already nearly covered with brood, and so proceed until at length the greater portion of the body of the hive is converted into a brood chamber. But we hope to speak of this more fully in another letter.—P. H. P.

DEATH OF MR. PETTIGREW.

WE regret to announce the death of our old and valued correspondent Mr. Alexander Pettigrew, which occurred at Bowdon, Cheshire, on the 10th inst. As a portrait of this earnest apiarian and excellent man appears in our issue of September 8th, 1881, with his autobiography, it is not necessary to repeat here the details of his life. As a gardener he was able, as an apiarian successful, as a member of the community one of the most worthy. He was from youth to old age an earnest seeker after knowledge, and what he acquired he took great delight in imparting to others. He commenced writing for the press forty years ago, and continued without intermission until within two years of his death. His communications to our columns were voluminous and appreciated, and his popular "Handy Book on Bees" has passed through several editions. He clung with characteristic tenacity to the value of large straw skeps for bees, simply because he found they gave him the greatest bulk of honey in return for the least outlay in labour, and also because he could always find a market for his goods, but latterly especially he admitted the great value of the bar-frame hive and the sectional system of management.

Perhaps no one has done more to advance bee-keeping than Mr. Pettigrew has during the period indicated. He was a persevering teacher long before the art became fashionable, and numbers of persons in this and other countries have benefited by his experience, which he so readily communicated through the press. He was a forcible and occasionally a pungent writer, and if he ever found that he had unwittingly given even the slightest pain to a controversialist his letters always showed that he inflicted even greater pain on himself.

Honest and upright in all his dealings, intellectual in character, an agreeable companion, a fast friend and a model parent and husband, the memory of Mr. Pettigrew will be cherished as of one who endeavoured to do his duty and to leave a good name behind him. He leaves a widow, with whom we sympathise in the great loss she has been called to endure.

TRADE CATALOGUES RECEIVED.

James Dickson & Sons, 103, Eastgate Street, Chester.—*Catalogue of Farm Seeds.*

H. Cannell & Sons, Swanley.—*Catalogue of Chrysanthemums.*

Charles Turner, Slough.—*General Spring Catalogue for 1884.*

W. P. Laird & Sinclair, Dundee.—*Price Current of Agricultural Seeds.*

Dickson & Robinson, 12, Old Millgate, Manchester.—*Select Farm Seeds.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (R. C.).—A full chapter on Auriculas is included in our "Manual of Florists' Flowers," price 4d., post free 4½d. A larger work dealing with these plants is Mr. J. Douglas's "Hardy Florists' Flowers," which can be obtained from the author, The Gardens, Great Gearies, Ilford, Essex.

Worms on Lawns (G. H.).—We know of no safer or simpler plan for cleansing lawns of worms than saturating the ground with clear lime water. A peck of lime placed in a cask with forty gallons of water will provide what you want. It will need to be skimmed, however, and used in a perfectly clear state. It will not injure the grass, but will bring the worms to the surface, from which they can be swept and disposed of.

Pruning Holly Hedges (Sussex).—There is no better time for trimming Holly hedges than during mild weather in April, as the sap is then becoming active and the after growth is quick. It is well also to go over them in August, shortening any growths that are unduly vigorous, and a more equal growth and better furnished hedge will result. A knife is much better than shears for the work in question, as severing the leaves, which must occur when shears are used, mars the effect of the work.

Converting a Slope into a Terrace (J. T. S.).—Your plan of dwarf walls would answer very well, and might be rendered highly ornamental with balustrades of open stonework and vases or tazzas along the top, continuing the balustrades down the sides of each flight of steps. A much less expensive and equally efficient plan would be to substitute short turf slopes for the walls if there is sufficient space for them. Before taking the whole of the long slope in hand let a section of it be dressed into as many levels and short slopes as may appear necessary, in order that you may study the effect and make any alterations without unnecessary outlay.

Exhibiting Conifers (E. P. C. B.).—We should not send any of which you have a doubt as to the accuracy of the names, nor any that are very small. Let what you forward be sent as typical examples of good growth, and as indicating the natural advantage of your district for the growth of the plants or trees. We should not remove more of the tap roots than is necessary for enabling the transplanting to be done in boxes conveniently and well. They should be well watered at the roots, and sprinkled occasionally over the foliage, and shaded for a time if the weather be bright. They would be established the sooner if placed in a house or frame and kept rather close for a few days or a week. This, however, is not essential, and with careful management you may succeed without any such aid.

Old Ashleaf Potato (Loughgall).—In reply to your question, Mr. Iggulden writes:—"If 'Loughgall' will refer to page 183 he will observe I did not state this good old sort 'can still be had.' It is still cultivated in several private gardens, but I am sorry to say I cannot inform him where he can purchase any seed. It is a pity someone does not work up a large stock of it, as there is no doubt about its being the best early Potato in cultivation. The tubers are not unlike Veitch's Improved Ashleaf, but the sprouts are much thicker and are of a reddish green colour, whereas those in Veitch's and other early Ashleafs are generally purple. The greatest quantity of it I have seen was grown by Mr. Taylor at Longleat, and I believe Mr. Bardney grows it extensively, and may be able to state where it can be bought."

Cucumbers and Tomatoes (A Lancashire Reader).—We have never seen finer crops of Cucumbers and Tomatoes than in an instance where both were grown in the same house; it was, however, a span-roofed structure, having Cucumbers on one side and Tomatoes on the other, still it afforded conclusive evidence that the temperature and management were equally suitable for both crops. We perceive you wish to grow Tomatoes on the back wall and Cucumbers on the roof. If you plant very strong Tomatoes, and have them as much as possible in advance of the Cucumbers, you may succeed in having a fair but scarcely a heavy crop of the former. We have seen very useful Tomatoes grown on plants trained to the back walls of vineries, but the houses were lofty and probably lighter than yours. You have little to lose in trying the Tomatoes as suggested, as they are more likely to succeed than Cucumbers in the position in question, and with care in setting the fruit and good management generally you may possibly obtain some good dishes of fruit.

Seedling Cineraria (J. H.).—Although you endeavoured to pack the flower so that it should reach us in a fresh state, you quite failed in your object, as most persons fail who use cotton wool instead of moss for packing. The florets are very broad and the colour rich, but we cannot judge satisfactorily of the form of the flower owing to the curled and partially shrivelled florets. We are, however, pretty certain the variety does not possess nearly equal merit with the best that are certificated by the Floral Committee of the Royal Horticultural Society. You will be quite justified in naming the variety and growing it under name, but we do not apprehend it has any particular commercial value, as we scarcely think a florist who grows the leading varieties for sale would purchase it.

Root Culture of Vines (J. A.).—The remarks of Mr. D. Thomson to which you refer apply equally to inside and outside Vine borders. Unless the soil is filled with active roots, and especially near the surface, it is very easy to waste much money in the purchase of prepared manures for dressing the borders. We have known many pounds' worth of fertilisers applied to Vine borders which contained few or no fibrous roots, while where these were working nothing was applied to the soil. The majority of the fibrous roots of Vines are often in a very different part of the garden from where the owner expects them, and he consequently wastes manure by applying it in the wrong place. We have seen many instances of this. We also know of still more, where manure is wasted because given in excess on account of there being so few active fibrous roots in the soil to absorb its virtues. The practice described by Mr. Thomson of encouraging the increased production of surface roots is exactly in accordance with advice that we have en-

deavoured to give on various occasions. A network of active roots close to and bristling through the border may be regarded as the first essential towards success in Vine culture, and of infinitely greater importance than any amount of artificial manures of whatever kind applied to borders which contain few of such roots. Mr. Thomson takes care to provide roots before he gives top-dressings, and this is what everyone should do who desires heavy crops of fine Grapes. Even inside borders may with advantage be mulched with manure, and the moisture and food will attract the roots upwards; whereas if the surface of the soil is allowed to be loose and dry they are inevitably driven downwards either into inferior soil or out of the border altogether, and brick walls will not stop them unless the bricks are laid in cement.

Carnations not Flowering (J. S.).—A temperature of 65° by day and 55° by night during the dark days of winter is too high for Carnations, but we do not think that that was the sole cause of the failure, and in all probability the plants had very different treatment in the nursery in which they were grown than they received after you obtained them. For instance, they may have been grown in a pit, the pots plunged in cocoa-nut fibre refuse or some other moist medium, and exposed fully to the air by the removal of the lights in all favourable weather. If this were so, which is probable, the check they would receive by being placed on the dry stages of a house and kept too close and warm would be quite sufficient to cause their collapse. The secret of growing good plants for winter flowering is to raise them annually from strong and sturdy cuttings, and to keep the plants strong, sturdy, and freely growing throughout the summer, either in the open air after May, or in pits from which the lights can be drawn if the locality is very cold and heavy rains prevalent. The full details of culture cannot be given in this column. We shall shortly publish an article by a successful grower of these plants that will be of more service to you than anything you can find in any book with which we are acquainted.

Treatment of Orchids—Heating (L. I. K.).—The Cattleyas will require a continuation of good treatment to insure strong growth this season, which must be well matured. Supply them liberally with water, and maintain a good temperature in the house. Dendrobium Cambridgeanum will also require rather more water now, but the D. Jamesianum must be in bad condition. Turn it out of the pot or basket, remove all the old material and employ fresh healthy sphagnum and fibrous peat, placing the plant in a warm position for a time, and supplying water very carefully until fresh growth is being made. An excellent article on potting Orchids will shortly be published that will be useful to you. The number of feet of piping your boiler will heat depends upon the superficial area exposed to the action of the fire. Every square foot of such surface is estimated to heat 40 to 50 feet of 4-inch pipes, or 55 to 66 feet of 3-inch pipes, but this is only approximate. If the pipes and boiler are connected by 3-inch pipes the circulation will be quicker than if the smaller size is employed, otherwise it is of little consequence.

Sulphate of Ammonia (F. H.).—This active fertiliser is best applied in the form of a top-dressing to crops in a growing state in spring, and that are not making satisfactory progress. Sprinkled over the roots, not the foliage, in showery weather, at the rate of from 1 to 2 ozs. per square yard, hoeing the ground as soon afterwards as possible, usually has a marked effect in expediting growth. It accelerates the movement of all green crops, promoting the increase of stems and foliage; but if given too freely, or to crops that are already growing freely enough, it is calculated to do more harm than good. We have known Potatoes, Peas, and Beans rendered over-luxuriant by its use, and not bearing freely in consequence. In such cases there is not only a loss of the fertiliser that is applied, but the strong-growing plants deprive the soil of other constituents, and do not give a corresponding return. It is in the same way that some farmers have made the land poor by using nitrate of soda and sulphate of ammonia too freely to their corn crops. But while we have known loss incurred by the injudicious use of the fertiliser in question, we have seen great benefit result when it has been applied wisely. It is almost impossible to teach a person when and in what quantity to apply powerful stimulants, and to what crops to apply them, without knowing their condition and the nature of the soil. By far the best plan is for each individual to use the fertiliser experimentally on the lines indicated, and note its effects on his soil and crops. For plants in pots a pinch between the finger and thumb is sufficient for sprinkling on the soil of a pot 5 inches in diameter, or, if mixed in water, a quarter of an ounce of the sulphate to a gallon of water will suffice; but in neither form will it be of benefit until the plants need more support than the soil affords.

Vines for Late Grapes (H., Belgium).—We presume you require the Grapes for commercial purposes, but you do not say so, and you appear to want a number of varieties. For the house you describe, which, properly managed as regards heating and ventilation, would answer very well, you will probably find Muscat of Alexandria the best of all white Grapes, and Gros Colman the most profitable of the black varieties. Mrs. Pince's Muscat is better in flavour, but does not usually bear so heavily nor colour so well. Lady Downe's Seedling keeps later, but is much smaller in bunch and berry, yet good well-kept crops are profitable. Black Alicante is one of the most certain bearers, and the massive bunches of well-coloured berries have an imposing appearance, but the quality is not of the highest, neither, indeed, is that of Gros Colman, as a rule, though it is often very good, but the size of the berries of these last two varieties when well finished usually tempts purchasers. All the varieties named may be grown in the same house, but we should not include the Duke of Buccleuch except it was particularly desired, and we should then only plant one Vine as a trial. The Muscat of Alexandria succeeds quite well on its own roots, and so do the others; in fact, you can only purchase young Vines on their own roots in England. You can graft or inarch afterwards if you prefer. The Muscat of Alexandria makes a good stock for most varieties of Grapes, and Gros Colman succeeds well on the Black Hamburgh. We never recommend dealers; it would be most unfair for us to do so. Good Vines have been many times advertised in our columns, and possibly they may be found in the present issue. It is quite time that Vines are purchased for planting this spring, as if the buds swell materially they are liable to be broken off in transit. We are not sure that we understand the height and width of your house—namely, 22½ feet. This is an extraordinary height. Without a sketch drawn to scale of the house

we cannot enter into the details of heating, nor must you expect us to recommend any particular boiler or manufacturer. Cannot you gain practical experience on this matter by visiting one of the large horticultural establishments, of which there are so many within easy reach, where methods of heating can be inspected?

Names of Plants (Reader).—*Charieis heterophylla* (*Kaulfussia ameloides*). (*Eighteen-years Subscriber*).—1, A species of *Aristolochia*; 2, A Palm (*Attalea* species); 3, *Lagenaria vulgaris*; 4, *Acacia lophantha*. (*R. B.*).—1, *Narcissus pallidus*; 2, *Narcissus minor*; 3, *Scilla bifolia*; 4, *Scilla bifolia rosea*. (*G. W. B.*).—*Dendrobium Findleyanum*. (*W. E. B.*).—1, *Ranunculus Ficaria*; 2, *Mercurialis annua*; 3, *Scilla sibirica*; 4, *Cochlearia officinalis*. (*D.*).—1, *Anemone coronaria* var.; 2, *Cœlogyne flaccida*; 3, *Calanthe maculata*. (*W. S.*).—The *Cineraria* is an ordinary variety of no particular merit. The other specimen was very imperfect, but appears to be *Scilla bifolia alba*. (*Bridge of Allan*).—1, *Maxillaria picta*; 2, *Selaginella caulescens*; 3, *Adiantum assimile*; 4, *Adiantum Williamsii*; 5, *Pteris cretica*; 6, *Asplenium fœniculaceum*. (*A Constant Reader*).—Both the leaves sent are those of species of *Anthurium*, but are insufficient to enable us to determine them. Certainly they produce flowers. The Orchid is *Dendrobium Jamesianum*.

COVENT GARDEN MARKET.—MARCH 19TH.

BUSINESS very dull, scarcely any alteration to quote.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	to 5 0	Nectarines dozen	0 0	to 0 0
" per barrel	0 0	0 0	Oranges 100	6 0	10 0
Apricots box	0 0	0 0	Peaches dozen	0 0	0 0
Chestnuts bushel	10 0	0 0	Pears, kitchen dozen	1 0	1 6
Figs dozen	0 0	0 0	" dessert dozen	1 0	5 0
Filberts lb.	0 0	0 0	Pine Apples English lb.	2 0	3 0
Cobs per lb.	1 3	1 6	Plums and Damsons	0 0	0 0
Grapes lb.	5 0	10 0	Strawberries oz.	0 6	1 0
Lemon case	15 0	21 0	St. Michael Pines each	2 0	8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Beans, Kidney 100	2 6	0 0	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 3
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts ½ sieve	1 6	2 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney cwt.	4 0	5 0
Carrots bunch	0 3	0 4	Rhubarb bundle	0 4	0 0
Cauliflowers dozen	2 0	3 0	Salsafy bundle	1 0	0 0
Celery bundle	1 6	2 0	Scorzouera bundle	1 6	0 0
Coleworts doz. bunches	2 0	4 0	Seakale basket	1 0	1 6
Cucumbers each	0 6	0 9	Shallots lb.	0 3	0 0
Endive dozen	1 0	2 0	Spinach bushel	2 6	3 6
Herbs bunch	0 2	0 0	Tomatoes lb.	2 0	2 6
Leeks bunch	0 3	0 4	Turnips bunch	0 3	0 0
Lettuce dozen	1 0	1 6			



GRASS SEEDS FOR ALTERNATE HUSBANDRY.

THIS is a subject of great importance in the cultivation of arable farms, and requires a more lengthened notice than appears at first sight, for we have not only the latest improvements to consider, but also as to how they can best be applied to the various soils and climates of this kingdom. At the same time we must endeavour to adapt the seeds to the different systems or rotations of cropping, especially noticing the number of years which the land may be required to lie in grass, and the stock which may be kept for the consumption of the produce whether in hay, ensilage, or field grazing. Hitherto this subject has been most unfortunately neglected by many farmers who have continued certain plans and practices which were customs, and frequently the prejudices, of former times. But we have also some changes to provide for, which even now are not generally accepted by agriculturists, being still regarded only as experimental, and which nothing but actual and careful comparison with former management can decide whether to adopt or abandon.

We have now to refer to those rotations which will go far to influence our selection of seeds, for there are various points to be considered. The ordinary four-course rotation or Norfolk system of cropping consists of, first, fallow, green crop, or roots; second, Lent corn or spring Wheat; third, Clovers, &c., for mowing or feeding; fourth, Wheat, by once ploughing out of grass and Clover lea. It is necessary to consider whether the Wheat eddish should be autumn fallowed, sown with catch crops, or sown in the Wheat for grazing previous harvest and the winter fallow ploughing. We have previously omitted Italian Rye Grass, as though it was of no use, which is true if mixed with permanent Grasses for the production of a good turf as permanent pasture, but in alternate husbandry the case is

altered. On the first introduction of this Grass from Lombardy about the year 1883, a neighbouring amateur farmer purchased some seed at one guinea per bushel, its growth attracted our attention, and we thought it may be judiciously grown, being sown in the Wheat in the spring for autumn grazing, for at that time our flock always consisted of the best and most forward lambing horned Dorset or Somerset ewes. For feeding these ewes and their lambs on the Wheat eddishes we found it invaluable without disturbing our four-course rotation of cropping, and have frequently folded off this Grass for grazing two or three times before breaking up and ploughing for the winter fallow. We have never found this Grass more valuable in use in any other way, for we have often made the choicest sucking lambs and sold at Christmas time, neither ewes nor lambs having received any other food but grazing on the Italian Rye Grass.

The above way of seeding is available if the seed is clean, but unfortunately the seed is often sold in this country containing the seeds of the worst grass or weed which can be found in any mixture—viz, *Agropyrum* or *Triticum repens* (Couch), and on this account much objection has been taken to the use of foreign seed for many years. It is also known that it does not suit the English climate, and that it does not maintain its character for early and successional growth in adverse seasons. It is, however, most important to notice that new varieties through selection and growth in this country are now sold, and are not only valuable for their evergreen and quick successional produce, but from having been raised in this country by judicious selection, they will be more likely to maintain their characteristics through having been grown in our climate. As several seed-growing firms offer their own home-grown seeds of "evergreen" Italian Rye Grass they will prove valuable in a mixture for the purposes of alternate husbandry, but especially in mixtures for one or two years lea.

In the four-course rotation the Clovers follow the Lent corn, and are seeded for in the spring; now it is notorious that the broad or red Clover in the majority of soils will not bear a constant repetition on the same land, for although it may be a fair plant in the autumn, yet it dies away during winter, and the land is then considered Clover-sick. It is, however, not so generally known that when *Trifolium* is grown as a catch crop it frequently insures and secures with greater certainty the red Clover when it follows *Trifolium* in succession. Be this as it may we must provide against the failure of red Clover, and do our best to provide a substitute for the loss of the Clover plant, which has for many years been considered a prelude to the loss or injury of the Wheat crop which succeeds it. In the four-course rotation in consequence of the value of the Clover roots which in their death and decay furnish the most valuable manure for Wheat, and this is one of the points to be considered, in order that in the case of failure of the red Clover we may obtain a sufficiency of deep-rooting Grasses and their stems, which when ploughed-in out of lea shall furnish as valuable manure or nearly so as the red Clover roots are found to do, therefore in ordinary cultivation and seeding the common Rye Grass from time immemorial has been seeded in mixture with red Clover, and in consequence when failure of the Clover occurred no manurial remains were available to plough-in for Wheat. As the question of green and vegetable manuring is now better understood, our mixture must contain seeds which will, after being mown or grazed with cattle, leave a large amount of roots and stems, which when ploughed-in shall manure the land with certainty for the Wheat crop. We therefore recommend the mixture as follows, for seeding in Lent Corn or spring Wheat the latter being best; where the land is not Clover-sick. First course, sow per acre—

	lbs.
Red or Broad Clover	9
Giant White or Dutch	3
Evergreen Italian Rye Grass	4
Cock's-foot Grass	6
Timothy Grass	3
Total per acre	25 lbs.

SECOND OR ALTERNATE COURSE, SOW PER ACRE.

	lbs.
Giant Perennial Cow Grass Clover	9
Alsike or Hybrid Clover	3
Evergreen Italian Rye Grass	4
Cock's-foot Grass	6
Timothy Grass	3
Total per acre	25 lbs.

These alternate seedings are advised, as the red or Broad Clover grown only once in eight years is more likely to retain its plant. The seeding just mentioned will apply chiefly to heavy or medium soils, furnishing crops adapted for mowing or grazing with cattle or sheep. We must, however, next refer to soils whereon sheep only are accustomed to graze, such as chalk, gravel, sand, or limestone, and it should apply to a rotation whereby the Grass lea is expected lie for three or four years, principally for sheep-feeding; but still

we must look to the advantage of having a well-covered lea of stems and roots of Grasses for ploughing-in as a preparation for a cereal crop, such as Oats or drege, or probably Wheat, for the rotation would probably be as follows : Wheat out of lea, fallow for roots fed-off, Lent corn in which the seeds will be sown to remain as follows :—

SEED FOR AN ACRE.						lbs.
Sainfoin, milled seed	...	...	...	...	...	14
Giant White or Dutch Clover	...	...	...	...	...	5
Yellow Suckling ditto...	...	...	...	...	...	4
Crested Dog's-tail Grass	...	...	...	...	...	4
Yarrow (Milfoil)	...	...	...	...	...	3
True Sheep's Fescue	...	...	...	...	...	4
Total seed per acre						34 lbs.

In this mixture we have included those Grass seeds which are peculiarly adapted to dry, stock, or hill farms for furnishing pasturage for sheep of the best quality and the most productive in seasons of drought. At the same time, when the lea is ploughed it will furnish a valuable turf of roots and stems as manure for the succeeding crop in the rotation. We have introduced Sainfoin into this mixture, although it is frequently said it will not answer except on land with chalk or limestone subsoils, but this is not the case exactly in our experience, for we have known it take well on various dry soils where the land was not deficient in chalk or lime, which been applied in its cultivation. So long as we are considering the question of seeding for Grasses and Clovers it will be found that we have cautiously looked forward to possible events or circumstances which may render it beneficial to the farmer to alter the rotation, and thus be prepared for any and every change at all likely to make the growth of the cereals more profitable than at the present time. Under the rotation and seeding recommended, whether the lea is ploughed for cropping with cereals or any other produce, the lea will furnish abundance of roots and stems to manure the land quite irrespective of the droppings of sheep or cattle which may have been feeding on the leas.

We will again call the home farmer's attention to seeding before named for medium or heavy soils, for we contend practically this mode of seeding enables him not only to break up the lea at one year under any rotation with benefit, but place him in a position to throw every field seeded in this way into permanent grass without any further expense of re-seeding if circumstances should require it. It must also be remembered that in those cases where a dairy is kept the produce will be available for hay, ensilage, or feeding by dairy cattle, and young cattle of any description, and thereby adding to the resources of the farm under any circumstances in which the farmer may be placed. Again, there is another point to be considered upon the question of the cultivation of flat-lying heavy clays, such as those termed London clays, which are frequently ploughed in 8-foot ridges. Now, the usual course or rotation of cropping is as follows :—Wheat, Lent corn, and seeds. If, however, the seeding we have recommended is adopted upon such land, if it is clean and free from couch there is no reason why there should be a fallow at all if the lea was ploughed in early and sown with Wheat, when the rotation would be as follows :—Wheat out of lea, Beans or Peas, Oats, or drege, grass seed mixture as above stated for heavy or medium soils.

WORK ON THE HOME FARM.

Horse Labour.—Although the general horse labour is forward in most districts, yet delay has occurred to some kinds of work. It is time now to begin the seeding for Lent corn on all soils, but on some flat-lying strong land the drilling of Peas and Beans must be urged forward. It is now too late to lay out composts of earth and dung upon pastures intended for mowing, but where they are intended to be grazed by cattle and sheep it is not too late if a few dry days should occur. After these composts are laid out and spread they may be soon ready for chain-harrowing and rolling. This will serve to fix the manures to the surface, and with the assistance of the usual showers of April will advance rapidly, and the cattle in feeding on the land will tread in the compost and render it effective for the whole of the summer. These dressings are necessary, more particularly where dairy cows are fed, because they rob the pastures more than any other cattle. Some labour will now be required in harrowing and rolling on the young Wheat, especially where it is intended to be seeded with Grass and Clover seeds, for the seeds will generally take well if the previous preparation or crop has been a fallow, Potatoes, or roots fed off by sheep, for by seeding in this way we have known fine crops of Clover after Wheat, and Grass in the Wheat eddish fit for folding twice in the autumn if Rye Grass, but in Clover we often get an abundant crop fit to mow for the soiling of horses and cattle. We have done this when the autumn season has proved favourable for four or five years in succession. Some farmers will tell us that it injures the growth of Clovers during the following spring and summer, but that is not our experience. When we have mown the Clover in autumn it has always proved superior in growth the next season to any that may have been fed by sheep in the autumn. In case of hindrance on the tillage land set some horses to roll the grass, both in pastures and Clovers on

the arable land; other horses will be for the time when off the land be employed in fetching chalk or lime when near to those districts where chalk soils occur. We are then, after putting the chalk in a dry place, such as a shed or barn, in a position to screen it with the ash screen, so that when the drilling of root-crop seeds begin we may be able to drill screened chalk with the other drill manures instead of ashes as usual. This plan is more necessary and effective upon those soils where the roots are liable to suffer from clubbed roots. Farmers or writers attribute this clubbing of the rootlets to various causes, but the true cause is the absence of carbonate of lime in the land, and which is readily supplied by about twenty bushels of fine chalk per acre. This is a great economy as compared with a heavy dressing of 30 tons per acre of chalk in a rough state, and after it has been applied it is several years before full beneficial action of chalk in the land is obtained. In various parts of the kingdom the chalk pits are but little used or have been for twenty years past, for it is a heavy tax on both landlord and tenant, although they may arrange for each to bear a certain proportion of the expense, although the chalk may be within a few miles of the land to be dressed. It is really the basis of profitable farming, for although we may force much land into a full production of straw, yet the yield of grain will be more or less deficient if carbonate of lime is absent in the soil.

Hand Labour.—This is the month for setting out any draining required on the farm, for after a few hours' rain, when the land dries off on the surface, it is easy to see the extent of the land requiring to be drained, for the dry land will show a white brown colour, whereas the parts which have a wet subsoil will show very dark. Looking at any field from a distance of irregular soil, some of which is too wet, it will be seen as if a chart had been made, coloured to show the wet and dry parts of the field separately. Full employment for women as well as men will now be ready, specially where the planting of Potatoes is going on. Women also on any fields in which the couch or twitch exists only in tufts or bunches, may with great advantage be forked out by women, as it is not heavy labour, and is well suited for them if they are disposed to work. That is not the case everywhere now, although for many years we employed a set of women winter and summer about various kinds of light work to great economy; but this cannot be done without having a number of females at work constantly on the farm, either in the fields or under cover in the sheds and barns as may be required, for where they are constantly employed they are not only better able to do the work of the farm, but their labour is frequently more effective and cheaper in all they are able to undertake than that done by the men, especially if they work only two or three together. The irrigated meadows should now be laid dry and the water turned off from those parts which will be fed by sheep first, and then turned on where the grass will be required for hay or ensilage.

Live Stock.—The working horses of the farm should still receive about 12 lbs. each of roots per day either of Carrots or Mangold, and although during the winter they may have received sweet Oat or Barley straw with their two bushels of Oats per week, yet now this being the commencement of the busy period they should have good field hay instead of straw. The bullocks in the boxes should now be living upon a full allowance of cake not exceeding 4 lbs. and 1 lb. of bean or barleymeal each per day, mixed and given with the cut roots, not to exceed 56 lbs., and we wish it to be known as the result of our experience that they should have only sweet straw without any hay at all, because when well fed in other respects they will enjoy better health at less cost. Lambs fattening for the Easter markets should now receive the best of food in advance of the ewes, but it should be remembered that the ewes likewise ought to receive full allowances of cut roots, with cake and beanmeal strewn over them in the troughs, and the best hay on the farm in addition, for the most experienced shepherds say fat ewes make fat lambs, and this is no doubt true, because they give full quantities of the richest milk.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1884. March.		Baromet- ter at 32 rd and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday		9	29.532	42.1	40.6	N.W.	40.3	50.6	38.4	84.3	0.214	
Monday		10	29.239	40.4	40.0	W.	41.3	50.2	39.2	87.8	0.556	
Tuesday		11	29.258	39.6	38.6	N.	41.4	46.6	36.7	63.0	35.3	
Wednesday ..		12	29.697	43.3	40.6	N.	41.6	51.6	39.9	76.2	36.8	
Thursday		13	30.080	50.0	47.4	S.	41.7	56.2	41.7	84.7	38.1	
Friday		14	30.160	50.5	47.3	S.	43.0	60.6	46.7	95.6	43.3	
Saturday		15	30.134	52.6	50.1	N.E.	44.1	67.2	45.5	99.8	39.5	
			29.729	45.5	43.5		41.9	54.7	41.2	84.5	38.0	
											0.770	

REMARKS.

9th.—Rain early, then fine throughout.
10th.—Squall about 6 A.M., then fine; rather fine sunset; misty evening.
11th.—Very heavy rain early; fair all day.
12th.—Some fog early, then fine; cooler in evening.
13th.—Fine all day; slight squall of wind at 1 P.M.; cloudy at night.
14th.—Fine morning, and warm sunny day.
15th.—Foggy early, subsequently fine sunny day.
Heavy rains on the first two days, the last two days quite warm and summerlike.—
G. J. SIMONS.



27	TH	Royal Society at 4.30 P.M.
28	F	Quekett Club at 8 P.M.
29	S	
30	SUN	5TH SUNDAY IN LENT.
31	M	
1	TU	Narcissus Congress at South Kensington.
2	W	Show at Edinburgh. Two days.

THE APPLICATION OF MANURE IN FRUIT CULTURE.

THAT poor soil requires manure to render it suitable for the cultivation of fruit is certain, but how, when, and in what quantity it is to be used is not by any means so clear, for mistakes have so frequently been made either in using too much or too little, that the exercise of caution in its application has often been advised, often, too, in a manner so vague as to bewilder rather than help. As a safe hint I have repeatedly said that soil which will grow good vegetables will grow good fruit, but even this statement must be qualified. We may plant a Cabbage in crude farmyard manure newly worked into the soil without risk of overfeeding, but to treat a fruit tree so involves the possibility of rampant soft pithy growth, instead of stout, firm, well-ripened shoots. Better would it be, therefore, to say that soil which by good culture has been brought into a suitable condition for the growth of vegetables may fairly be expected to answer equally well for the growth of fruit, meaning thereby soil thoroughly fertile, porous, and well drained.

To reclaim poor land for fruit culture is so costly that if possible it should be avoided, but it has nevertheless occasionally to be done, and as the process will serve to illustrate my meaning more clearly than anything else could do, let us take it by way of example. After the drainage is done we have to see if the soil is deficient of lime and of small stones, if so the deficiency must be made good by the dressing of lime upon the surface, and of sufficient burnt clay or coal ashes to impart mechanical division to the soil so that air may enter and superfluous water pass through it quickly. A dressing of old manure from the farmyard or piggery must also be applied at the rate of thirty to sixty cartloads per acre, according to the actual degree of poverty of the soil, of which the existing growth of trees or grass will afford a tolerably clear idea. The soil is then trenched, the manure, ashes, and lime thoroughly mixed with it, and it is ready for planting. It may be explained that when so mixed in a poor soil lime is of especial value as a decomposing agent among the manure, setting free its fertilising properties, which thus become quickly dispersed among and absorbed by the soil, where it is retained till taken up by the tree roots. If instead of so preparing the whole of the soil stations only are made for the trees, especial care must be taken to use enough shattered stones or coal ashes to prevent the soil of the stations from subsequently settling down too closely. Turf sods are frequently used in stations and afford a rich store of food during the decay of the grass; but eventually the soil in which the sods grew reverts to its primary condition and settles down closely, and then our timely provision of hard gritty matter will keep it sufficiently porous to promote healthy root-action.

If we regard soil as the chief medium for conveying food to plants, we are led to consider what are the plants' requirements and how best to supply them through the soil.

No. 196.—VOL. VIII., THIRD SERIES.

However carefully we may prepare the soil for a fruit tree we know that as its growth progresses it takes from it food which must be replaced, or the tree cannot continue to yield full crops of fine fruit. How are we to replace it? There can be no doubt that the best form in which manure can be applied is in a liquid state. Dissolve, or mix, nitrogen, phosphates, and potash in due proportion with water, pour enough of it over the surface to insure every particle of soil about the roots being moistened, and you have restored its fertility, as it is termed. But I prefer saying we have put a supply of food in it for the tree, because that reminds me that it must be done again in due course. House sewage undoubtedly contains plant food in a most desirable form, and if it were only turned to account in the garden there would be very little complaint of a lack of fertility in the soil. This was one of the earliest lessons taught me in gardening. My father used always to have a man and horse going with the sewage barrel during the season of growth, and the sewage was regularly given to fruit trees of all kinds with most satisfactory results, both in the healthy condition of the trees and in the remarkable crops of fine fruit which they bore.

When we apply farmyard manure to our Vine borders and fruit trees do we know exactly what we are doing? We say that the trees require manure, and we are giving it to them, but they cannot absorb one particle of the mass in its solid condition. It is only when its nutriment is washed down into the soil by rain that the roots, or rather root hairs, can absorb it. So that after all this is but a clumsy method of applying manure, often slow and uncertain in action, and by no means to be compared to the swift sure effects of liquid manure. In a kitchen garden the fruit trees are generally healthy and fruitful, because manure is regularly mixed with the soil near the roots, and there is doubtless a sufficient annual root growth into the fertile soil to maintain the trees in tolerable health, but even there a frequent supplementary application of sewage proves highly beneficial.

Trees that are growing vigorously do not need manurial aid. The soil may, indeed, already be too rich for them; still, if the branches are thinly disposed so that the sun can shine on every leaf, luxuriant young trees will be fruitful in due time. They will yield fine fruit too, not hard, dry, flavourless examples such as are produced by ill-fed trees. It is strong growth in crowded trees—shoots produced in the absence of light and air—that should be avoided. Thin out the branches of strong-growing trees, make the soil firm about their roots, and then—well, let them grow, for even strong growth made under the full influence of the sun and the roots in drained soil will soon be studded with fruit buds, and eventually with fruit. This attained, and the fruit swelling, the benefits arising from copious supplies of liquid manure will be most marked. The grand examples that win prizes at the chief exhibitions are almost without exception the results of a generous system of culture, and never, in fact, come from semi-starved trees.

By turning the whole of the household sewage fully to account in combination with such solid manure as may be available, gardens generally in private establishments do not require the assistance of artificial manure. But in large commercial fruit gardens, and in certain exceptional circumstances some private gardens, its use becomes indispensable, and then a judicious mixture of pure manures should be applied. The manures which I am using on the farm this year are procured separately, and mixed here all of them would doubtless prove useful for the purpose, and I may add the names and latest quotations of prices on rail in London:—Steamed bone flour, £8 per ton; nitrate of potash, £20 per ton; nitrate of soda, £10 10s. per ton; mineral superphosphate, £3 15s. per ton; ground Cambridge coprolites, £3 10s. per ton.

Where only small quantities are required, recourse should be had to some prepared manure from a respectable firm, but

No. 1852.—VOL. LXX., OLD SERIES.

a knowledge of the actual market value of the component parts of such manures is important where a considerable outlay is involved.

The use of pure manures must not be undertaken lightly, however, or much mischief may be done. A correspondent once came to us for advice who had nearly killed his Grape Vines with an overdose of guano; and another who was tempted to apply nitrate of soda to his Celery, used it so liberally that the Celery grew almost as high as his head, and was spoilt.—EDWARD LUCKHURST.

"GARDEN-WORK."

UNDER the above title we have decided to issue a weekly periodical for the million, from the pages of which all who have small gardens in town or country may derive sound information on the culture of flowers, fruit, and vegetables. Our desire is to aid in rendering homes more attractive, and garden plots more profitable. Members of Cottage Garden Societies and allotment holders will find the pages of GARDEN-WORK of great service to them, as will the occupiers of small villa and suburban residences who cherish their gardens, yet who necessarily fail to find the information they need in high-class horticultural publications. All readers of the *Journal of Horticulture* are entitled to a specimen copy of the first number of GARDEN-WORK, which will be posted to those whose addresses are recorded at this office, also to those who procure "our Journal" from local newsvendors on receipt of a Post-card containing the address of the sender. The co-operation of our readers in introducing the new paper to persons in their districts who take an interest in gardening will be cordially appreciated, and any suggestions for distributing copies locally shall have our attentive consideration. As the price of the new paper is only one penny it will be within the reach of all.

NOTES ON ORCHIDS.

DENDROBIUM FINDLEYANUM GIGANTEUM.—The magnificent variety of this Orchid shown by Mr. Salter at Kensington recently is the finest that has yet been obtained, and its merits were duly appreciated by the Committee, who awarded a first-class certificate for it. There is but little difference from the ordinary type, except in size; but in this it is greatly superior, the flower possessing considerably more substance and exceeding 3 inches in diameter, with a fine rounded lip $1\frac{1}{4}$ inch across, and rich golden yellow in the centre. Presumably this has been proved to be a true or established variety, as it is surprising what effects are produced in the size of Orchid flowers by a good system of culture, such as that adopted at Selborne for all the collection.—L.

LÆLIA ANCEPS VAR.—A spirited sale of Orchids was held at Mr. Stevens' rooms, King Street, Covent Garden, on Thursday last, when the chief attraction was a new white variety of *Lælia anceps*, of which some wonderfully large imported masses were offered. The collector describes it as possessing broad sepals and petals, the flowers being over 4 inches across, white, the lip being veined with purple and having two crimson side blotches. The spikes are said to bear as many as six flowers, and Professor Reichenbach considers it to be the variety *vestalis*, of which only one plant is known to exist in England. One magnificent specimen about 9 feet in circumference, with pseudo-bulbs 7 inches long, was sold for seventy-eight guineas after a close competition; others with from fifty to 200 pseudo-bulbs, realised prices ranging from twenty to sixty guineas, according to their health and condition. Very rarely do imported Orchids realise such high prices as these noted, especially when it is remembered that an ordinary *Lælia anceps* can be purchased for 4s. or 5s. At the same sale some fine varieties of *Odontoglossum Alexandræ* were sold at from ten to fourteen guineas each, several being small plants in 60-size or thumb pots. One good yellow-flowered variety was included, and a remarkably beautiful form with rosy-purple flowers—one of the most distinct yet obtained.

ORCHIDS AT OAKHOLME, SHEFFIELD.—There is now a fine display of *Odontoglossums* in full bloom at this establishment, comprising strong plants of *O. Alexandræ*, *O. cirrhosum*, *O. citrosnum*, *O. gloriosum*, *O. nebulosum*, *O. tripudians*, and *O. triumphans*. Of the two first named there are some exceptionally fine varieties, including one of *O. Alexandræ* with round smooth flowers 4 inches in diameter, and of a clear pure white devoid of any spot or marking save a pale yellow patch upon

the lip. The collection of *Odontoglossums* here grown numbers upwards of 150 specimens, which are mostly large, strong, and in the most robust health. A fine collection of *Phalanopsis* is also here grown, and are now flowering well. Amongst them is an extremely fine variety of *P. amabilis* with blooms 5 inches in diameter and very stout, also a very fine specimen of *P. violacea*. *Lycaste lanipes*, which has been greatly admired, has just gone out of bloom. I am surprised this *Lycaste* is not more appreciated by cultivators, as it is both a free grower and a profuse bloomer, and I am of opinion its blooms are more beautiful and striking to the uninitiated observer than the rare and valuable *L. Skinneri alba*. Of two plants flowered here one produced eleven and the other ten of its large creamy-white blooms from a single growth. Mr. Hannah, the gardener at Oakholme, tells me he purchased the bulbs as imported under the name of *Lycaste alba*. He values it very highly.—W. K. W.

CUTTING DOWN DENDROBIUMS.—In answer to your correspondent, "C." (page 223), I here give him particulars of my experience on the subject. About seven years ago, when I took charge of the gardens here, there were two plants of *Dendrobium nobile* in 12-inch pots; these were tied up to stakes about 4 feet long; the plants not having been potted for several years, the aerial roots were as thickly matted together as they possibly could be, and the plants looked very unsightly. The growths not being more than 4 inches long, few of these bloomed. In the month of March I pulled the plants to pieces and made twelve of them; these I placed into 8-inch pots, the compost used being peat, charcoal, and broken crocks. After the plants were potted they were put into a plant stove along with an ordinary collection of stove plants; the house was kept to about 70° at night and from 80° to 100° in the daytime. The plants all grew well, some of the pseudo-bulbs being 2 feet long and 2 inches in circumference by September, in which month they were placed in a vinery, where the Grapes had been cut. There they remained till the following January without fire heat, and only had just enough water to keep them from shrivelling. About the beginning of February some of them were taken back into the stove; these flowered beautifully, some of the growths having as many as two dozen blooms. As I required the flowers to send away, the growths were cut off close to the pot with the blooms on them, when the young growth started from the base of the old pseudo-bulb that had been taken away. The plants were kept in the stove till the following autumn, when they were again removed into a cold house for the winter. This time some of the growths were remarkably fine, being as much as 3 feet 4 inches long, though the plants had not been potted that year and have only been potted once since. This I consider a much better way of growing *Dendrobium nobile* than allowing the old growths to remain on the plants. Sometimes I cut all the growths off a plant as soon as the blooms are open; at other times the plants may have been in bloom a week or two before the blooms are wanted, but I always take the growths out as I require the flowers. My plants look clean and healthy, with no roots up the stems like those usually seen when the old growths are allowed to remain on the plants.—B., *Sussex*

A WORD in favour of an old friend—namely, *Dendrobium nobile*. I was glad to see that your correspondent, "B.," grew such admirable examples of it, and as "C." (page 223) is not sure about the system practised to bring about such good results, I give my experience. As soon as the plants are out of bloom the flower spikes are cut; these are all carefully kept and inserted in pots of sand placed in a corner of the stove and kept moist; the buds that have not been ripened enough to produce flowers very soon start and form small plants, which are taken off and potted when from 4 to 6 inches long. The old stem retains sap enough to keep it producing young shoots for a year from the time it is taken from the plant. I began this system twelve years ago with three plants of moderate growth, and can now count them by hundreds; indeed, I shall be compelled to leave them to their own will very soon for want of room. I think many have failed to flower for want of a proper season of rest. After the growth is made I keep them dry and cool till the flower nodes appear very prominent. This plant is only to be seen in a few places near Glasgow, newer sorts causing it to be neglected, which is a great pity, as nothing is more useful from Christmas until February than a houseful of well-flowered plants.—G. B.

LARGE VERSUS SMALL BRUSSELS SPROUTS.

If any seedsman would introduce a variety of Brussels Sprout which would grow 3 feet high, and have the whole of its stem closely studded with sprouts about the size of a schoolboy's marble and nearly as hard, he might rely on having a better sale for the seed than was ever accorded to the most improved exhibition variety ever introduced. In my opinion we are now running some risk of losing the true type of our favourite

Brussels Sprout, and no greater misfortune could befall cultivators. The Aigburth and all the "exhibition" varieties which have come out of late do certainly produce large sprouts, but this is all that can truly be said in their favour, as they are not packed so closely on the stems of the large as the small ones. The large ones never become really hard. This makes them more easily injured by frost, and when the weather is mild they are more liable to start prematurely into growth, and if any of these are grown slightly in the shade they never form anything like sprouts, but simply a loose mass of leaves. Lastly, apart from all these drawbacks, no ordinary cook or ordinary attention will boil the large ones to be placed firm and entire on the table. The majority of them will fall to pieces in boiling, and when dished up it would take an expert to tell whether they were Cabbages or Savoys. In this particular, and most important it is, our little favourites are vastly different, as they retain their appearance throughout, and their flavour is at all times distinct and pleasing, or, indeed, all that we need ever expect Brussels Sprouts to be. The Dalkeith and the Rosebery varieties are the only real Brussels Sprouts I have, and I am so proud of the quarters of these that I possess that I shall save seed and try and keep them true.—A KITCHEN GARDENER.

RHODODENDRON TRIFLORUM.

THIS is a rare and very curious species, discovered by Sir J. D. Hooker in Sikkim, Himalaya. The colour is yellow, and the florets are not unlike those of *Azalea pontica*. The habit of the plant, however, is evergreen, and the backs of the leaves are profusely sprinkled with



Fig. 55.—*Rhododendron triflorum*.

scales, bringing it more into affinity with *R. ciliatum*, *glaucum*, and *cinnabarinum*. It seldom flowers as a small plant, which is a drawback, but, on the other hand, it is perfectly hardy, blooming too late in the season to be affected by the spring frosts. Two years ago I had a bush 4 or 5 feet high, which was covered with its triple yellow flowers, and excited much curiosity and interest. I have furnished many botanical gardens, with specimens, as well as my friends, Miss Jekyll of Munstead and Mr. Acton, a great *Rhododendron* fancier in Ireland. When the plant of the latter bloomed he wrote to express his delight on finding Sir Joseph's plate of this flower, which he had often wistfully, but hopelessly contemplated, at last realised in his own garden.

I have made many experiments for the purpose of hybridising this *Rhododendron*, but with little success. Some seedlings between it and *R. glaucum* are, however, coming on.—J. H. MANGLES, *Valenwood, Haslemere*.

FLOWER SHOW SCHEDULES.—I deny Mr. Wood's assertion, on page 204, that "I knew of the existence of 'The Eastbourne Gardeners' and Cottagers' Society' previous to receiving their schedules." On receiving the schedules I wrote to the Secretary, asking him if they held meetings

at which papers were read and discussed, at the same time expressing a wish to become a member. I received an answer saying "That a resolution had been passed to the effect that anyone joining previous to their shows must pay a year's subscription as entrance fee." I consented to pay this fee, although I had doubts as to whether I should be able to show or not. I did show a little, which would not have been much more had I been a member. I do not know how the members came to the conclusion "that I had no intention of attending the meetings," as that was my "chief" reason for wishing to join the Society. Now, what I ask the members of this Society to do is this, "Throw open the Society, and let the country gardeners around Eastbourne share in the privilege of meeting and discussing horticultural subjects; and if they continue to hold exhibitions, still reserve classes for members residing in Eastbourne."—J. GORE.

UNPRUNED FRUIT TREES.

IN February, 1881, I was directed to plant a piece of ground with Plum trees for kitchen use alone, using my own discretion as to the variety and style of tree. I decided to plant only one variety—*Victoria*, and to have standard trees tall enough to allow a crop of small fruit to be grown beneath. The soil was moderately heavy, 6 inches deep, and resting on clay, but very well drained. I had an offer of a few cartloads of night soil and ashes. This was trenched in, and in the operation a good depth of clay brought to the surface, and in this with a barrowload of good soil to each the trees were planted, their tops simply being shortened; they grew freely and made very strong shoots by the end of the season. The knife was not used, not a twig being touched. In 1882 they grew very strongly again, spreading out pretty regularly in all directions and forming good-sized heads. In 1883 a few fruits were had, but still they grew so strongly that I was often advised to root-prune them. I did not take that advice, and am glad that I did not. I have examined them rather closely to-day, and find that nearly all the wood made prior to last year is covered with fruit buds or spurs, in some places so thickly as almost to touch each other. Some of the trees have eight main branches, and out of these side branches grow at regular intervals, and with a little tying out they will make really handsome trees. On several branches about 2 feet long grown in 1882 I counted from twenty to thirty clusters of fruit buds, and if we are favoured with suitable weather when the trees are in bloom we shall have an enormous crop of fruit.

With Apples and Pears the result is the same. Some young Apple trees were planted about four years ago, and have never been pruned; the result is, the formation of fruit spurs on all wood made prior to last year; and on old bush trees that had been closely cut in for years but have lately been allowed to grow more naturally the same result is seen. Even Gooseberries are all the better for having part of the new wood annually left in. Nearly twenty years ago, when serving in a large garden, I noticed on Gooseberry trees trained to a north wall that new wood annually nailed in bore fruit its entire length, and yet the bush trees were yearly divested of nearly all young wood when there was plenty of room for it to remain. I am well aware that pruning cannot be altogether dispensed with; what I contend for is that pruning is like many other good things, it has been overdone, and it is time a more common-sense plan was adopted. I have been experimenting as far as my very limited opportunities would allow for several years now, and am satisfied that spur-pruning is a mistake as applied to hardy fruits not growing on walls. I have within the last few months had the pleasure of reading Mr. Simpson's useful book on the pruning and training of fruit trees, and, with respect to hardy fruits, my own experience fully confirms the views advanced in that work. I hope shortly to apply the principles of extension to Peach trees under glass than I have yet been able to do.—T. A. B.

AGAINST PLUNGING PLANTS IN POTS.

Do we not too often attach more importance to providing bottom heat than the circumstances of the case warrant? For my part I have long been under the impression that hotbeds in forcing houses for affording bottom heat are by no means indispensable; in fact, as I have frequently observed, they may easily prove injurious to many plants that may be plunged in them. If we were contented with standing the pots on the levelled surface of the hotbeds the case might be different, but plunged they may easily be overwatered, or even not get enough water, the former being the most fatal in its consequences. Then, again, the beds may suddenly become too hot, and either burn the roots or injuriously affect the unoccupied soil of newly potted plants, or, as more often happens, the heat declines considerably lower than desirable, and it is then when overwatering does much harm.

There may be causes where plunging material and a strong bottom heat are necessary adjuncts to the successful culture of plants, notably the Pine Apple, but I am by no means convinced of this even.

admit that when plants are first plunged in moist hotbeds they root and grow rapidly, much more so in fact than if stood on the surface only, but the gain is not so material as at first sight appears. Vines in pots, Melons, Cucumbers, Figs in pots, as well as many flowering and fine-foliaged plants, are apparently greatly assisted by bottom heat such as may be generated by a mixture of leaves and stable manure; but after all for various reasons it would have been better if less rapid or more woody growth had been formed, especially seeing what a check they experience when withdrawn from the beds, or if the bottom heat materially declines.

If we want short jointed well-ripened Vines we do not plunge the pots, well knowing that those plunged form larger but much softer and more pithy canes. Hundreds, I may say thousands, of Melon plants are annually grown to no good purpose, simply because they receive strong bottom heat at the outset, this declining most injuriously, at a time too when root heat is most necessary to assist in swelling and ripening the fruit. It is just the same with Cucumbers, only these are less liable to canker than Melons, besides yielding a fair crop before they collapse. Instead of taking a pride in having great leaves and large stems we ought rather to be satisfied with medium-sized healthy leaves and smaller and more woody stems, these being better calculated to withstand any strain or trial to which they may be subjected.

I hold that the roots require no more coddling than do the stems and leaves, and that plants can be forced into bloom, or started into active growth, and will fill the pots with roots quite as well as if they were plunged. Even the chambers formed over bottom-heat pipes are not unfrequently wasted, especially when a depth of plunging material is placed over them. I am aware that these chambers get very hot, but in many cases it is only because the materials over them have become very dry and non-conducting, the heat from the pipes thus being really wasted.

Let every pot and every mound of soil for Melons and Cucumbers be disposed on the surface of beds or on benches, and let the heat from the hot-water pipes, of which there should be plenty, serve for both top and bottom heat. At the very least the heat of the soil in the pots or mounds will never fall lower than the temperature of the house, and will share in the natural heat we secure on bright sunny days. The best crops of Melons I have ever seen grown, and the heaviest crop on Vines in pots I have ever seen, and which I assisted to grow, never received any assistance in the way of so-called bottom heat; and further, I have ripened Montserrat Pine Apples heavy and perfect in every respect, that were started and finished without bottom heat other than that afforded by the pipes under the bench on which the plants stood. Too few pipes in a house is the reverse of economical, and to enclose part of these in order to provide bottom heat, this necessitating making the top heating pipes unbearably hot, is in my opinion a great and common mistake. It is better by far in such cases to provide latticed stages or iron gratings for the plants or heaps of soil to rest on, and let all the pipes be moderately heated only. When warmer weather is being experienced the dry heat from the pipes may prove both injurious and unnecessary, and to obviate this cover these stages or gratings with moss or short litter, and by keeping this regularly moistened the evaporation produced will prove most beneficial. Under this treatment more water will have to be given the plants whether fruiting or flowering, but then those in charge experience no difficulty in deciding when it should be given, and, what is of equal importance, the soil in the pots will not be spoilt by worms. The latter alone, where they are as lively as with us, are enough to make anyone avoid any plunging material that will harbour worms.

In propagating, again, plunging material is by no means absolutely necessary; in fact, we strike more cuttings on the surface of beds and benches than anywhere, these including all kinds of softwooded plants as well as Roses, Carnations, and Bouvardias. In every case, however, the pots, pans, or boxes are kept at a safe distance from the pipes, and well shaded from bright sunshine.

I have quite as strong an objection to plunging pots in the open, especially in a cold moisture-retaining material. Roses, Carnations, and Chrysanthemums especially, all form better-ripened growth when the pots are unplunged, and this is better calculated to produce the best blooms during the winter. During very hot and dry weather a little light litter may well be strewed over the pots to prevent too rapid evaporation, and that is the only plunging material we find it advantageous to use.—W. IGGULDEN.

GIRTFORD GIANT RUNNER BEAN.—There is perhaps no season of the year more useful than the present for bringing under the notice of readers anything new or special amongst vegetables. General orders are no doubt in most cases made out, while in the case of new and apparently expensive seeds it often happens they are left to after-consideration. It is quite true much caution is necessary, yet every season convinces me more of the necessity to be careful, and not to be behind others in procuring anything that

is an improvement. This view was strengthened last season by the result of the trial of this Bean. I have long been a grower of this class of Beans, but the superiority of the Girtford Giant over others was remarkable, not only in appearance but in quality. In fact so much so that the others were much neglected by gathering so freely from this variety. So uniform and handsome were they that at our harvest festival we used them in clusters in a line amongst corn and fruits with great effect, and would advise any who have not given it a trial to do so.—E. B.

VINE ROOTS—MANURING VINES.

To make it clear to all of us you will allow me to say, perhaps, that I put quite a different construction on Mr. Thomson's words on the "Root culture of Vines" than is conveyed in a reply to a correspondent on page 236 last week. The writer of the latter says that "Mr. Thomson takes care to provide the roots before he gives top-dressings, and this is what everyone should do who desires a heavy crop of fine Grapes." Mr. Thomson, on the contrary, said, "Naturally the roots have the instinct of going where they have most to feed upon," and he recommends top-dressings to be applied from the beginning, and before the roots are produced, with the very object of creating them. "The moisture and elements of nutrition in the surface dressing will attract the roots," he writes; and speaking of top-dressing with "loam and horse droppings," &c., in autumn, and adding artificial manures in spring, he continues, "if this process is repeated every season it will keep the roots at the surface in the greatest health and activity." It is stable manure Mr. Thomson withholds, not artificial manures, which he says may be applied instead "at the first," at least I apprehend the words "bones and other appropriate manures" mean artificial manures. The note to a correspondent advises no artificial manures to be given till it is seen where the roots are. For my own part I make no distinction between artificial and other manures for the Vines, as both are applied for the same purpose. In brief, Mr. Thomson applies top-dressings to the surface of Vine borders to bring roots there and keep them there. I am not going to discuss the merits of the two systems, but I noticed Mr. Thomson's article at the time because it inculcates the principle that a rich soil produces roots sooner than a poor one. "At all events," says Mr. Thomson, "the roots of Vines can be led to multiply themselves at the very surface of the border" by the means he states. It will be remembered that not long ago it was stated that certain noted Vine borders had been filled with roots because of the poverty of the soil, so that you will see there are two quite opposite opinions entertained on the subject, one side maintaining that the way to do is to give poor soil first to produce mouths and feed afterwards, and the other, like Mr. D. Thomson, advising rich compost to be used for the same purpose. I agree with the latter.—CASUAL.

[We are always obliged by letters that add usefully to any instructions that appear in our columns, and the above communication affords us the opportunity for explaining that the sentence relative to "providing roots before giving top-dressings" had reference solely to artificial manures, and not to loam and stable manure. This qualification was not needed for the purpose of the inquirer who sought for information, as his letter had reference to artificial manures only. With that explanation we have nothing to withdraw from our remarks on top-dressing Vine borders in the answer under notice. We could add much on this important subject, but for obvious reasons we are unable to print an exhaustive essay in the brief space at disposal for answering inquiries.]

The point of our advice was and is that it is practically of no use applying artificial manures to those portions of a Vine border which contain few or no fibrous roots. There are hundreds of Vine borders at the present moment in that state, and if hundreds of pounds worth of artificial manures were spread on them the bulk of the money would be thrown away so far as regards the Vines, which would not be appreciably improved, though the soil over the fibreless roots would be made richer.

Artificial manures spread on the surface of a Vine border that contains only strong fibreless roots will not incite the emission of fibres from those roots and attract them through a mass of soil 1 or 2 feet thick, therefore the manure is wasted because it cannot be appropriated by the Vines; but if the soil be removed down to the black roots, and these are covered with a top-dressing of sweet enriched loam, containing also gritty matter such as wood ashes, and this is kept uniformly moist by a mulching of manure, then fibrous roots will form readily, and a million mouths be provided for appropriating the food that may be afterwards given where there were not a hundred before to absorb it.

Mr. Thomson's advice to "Apply loam and horse droppings in the autumn, and add artificial manures in the spring," is exactly in accordance with our views on this subject; and we are convinced if he advises the application of artificial manures "at the first," he presupposes the existence of fibrous roots not very far from them ready to turn the food that is given to profitable account. Much of the soil overlying the main fibreless portions of Vine roots is either so close and adhesive on the one hand, or so light and dry on the other, that it acts as a deterrent to the emission of fibres, and we consider the first duty of the cultivator is to remove such soil and add fresh, as it is vain to hope that it can be brought into the best condition for the Vines by the addition of artificial manure to the surface, however good the fertiliser may be.]

CRANSTON'S NURSERY SICK FUND.

THE first year of the establishment of Cranston's Nursery Sick Fund having expired, a general meeting of the *employés* was held in the seed ware-

house at King's Acre, on Thursday, 20th March, 1884, John Cranston, Esq. (President) in the chair, the vice-President, Hugh Ronalds, Esq., being also present. The whole of the *employés*, numbering upwards of 100 men and lads, attended. The Chairman congratulated all present upon the success of the undertaking, which he described as far exceeding the expectations of the promoters, attributing that success to the very general unity which he was so pleased to see existed amongst all concerned. Having in a few well-chosen words given all present some excellent advice regarding thrift, and the importance of making some provision against sickness, he called upon the Honorary Secretary (Mr. J. T. Mayo) to read his report, which was received and adopted as read. It was then arranged to pay a bonus to each, to the amount of one-half their contributions; this will reduce the amount in hand by £14 14s. 7½d.; the balance, £7 10s. 7½d., to be placed to a reserve fund. It was further agreed to increase the weekly allowance in case of sickness, from 5s. to 8s. for men, and from 2s. 6d. to 4s. to boys, during the first six weeks of their illness, and, should they still continue ill, half that amount for the next six weeks, after which they will not be entitled to any benefit for the next twelve weeks. The contributions to remain the same as heretofore—viz., 2d. per week for men and 1d. per week for boys, which amount is deducted (in advance) once in every three weeks from their wages, an arrangement to which all very readily agreed to without a single dissentient. The allowance in case of death has also been increased from £1 to £2 10s., and the widow of one of the late *employés* has just been paid this latter sum, he having died two days after this alteration was made, after an illness extending over six weeks. His total contributions amounted to 9s. 4d., whilst he and his widow have benefited to the amount of £3 16s. 4d., which clearly demonstrates the great amount of good which can be done by workmen combining in this way. The general regret expressed among the men here is that it was not established years ago.

The subscriptions during the year amounted to £40 12s. 10d., of which £15 14s. 7d. was paid to sick members, £2 13s. refunded to *employés*, leaving the remaining £3 5s. 9d. in expenses of management, the balance being disposed of as above mentioned.

At the conclusion of the business a hearty vote of thanks was accorded Mr. Cranston for presiding, also to Mr. Hugh Ronalds. In responding, Mr. Cranston promised to give all the *employés* a day's holiday during the first week in June, with which all were delighted. Three hearty cheers for Mr. and Mrs. Cranston, and Mr. and Mrs. Ronalds, with a cordial vote of thanks to Mr. J. T. Mayo, the Hon. Secretary and Treasurer, brought this most successful meeting to a close.—H. R. ILLMAN, *King's Acre, near Hereford*.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY held yesterday, William Houghton, Esq. (Treasurer), in the chair, the following candidates were unanimously elected Fellows, viz.:—William Poile Cockburn, Miss de Maine Constantine, Miss Egginton, Frederick C. Jacomb, J. Stanley James, George Jarrett, Mrs. Milner, Julius Newton, George Pounce, Baron Schroeder, Charles Henry Sharman, Edward A. Wallace, Walter H. Williams.

— WE understand the next Show of the WIRRAL ROSE SOCIETY will be held in St. George's Hall, Liverpool, on Friday, the 11th July next.

— FOR a period of three weeks that handsome shrub FORSYTHIA SUSPENSa has been flowering in a few suburban gardens, and its blooms are still fresh, bright, and abundant. F. viridissima is better known than this species, but it is much inferior in attractions, and it is difficult to understand how the superior form has been so much neglected. Richer in colour than the old and well-known Jasminum nudiflorum, with fine bell-like flowers three or four times as large, and equally profuse, there can be no question as to which is the better species in a horticultural point of view.

— A LIVERPOOL correspondent writes:—"We have been having changeable WEATHER recently. The temperature was 70° in the shade on Sunday the 16th inst. On Thursday the wind was piercingly cold. Some of the early Pear trees are in full flower. One frost which is sure to come will, I fear, blight all hopes of a crop on early varieties. Apples are keeping back wonderfully well. Hyacinths in a few days outside will be in full beauty, and Daisies are growing and blooming as if at the end of April."

— A CORRESPONDENT recommends the following as useful and beautiful varieties of GHENT AZALEAS—Magnifica, pontica sulphurea, pontica magnifica, Marie Dorothée, pontica tricolor, Triomphe de Ronquern, monstrosa fascicularis, Van Dyck, Admiral de Ruyter, elegans Optima, and Exquisite.

— ALTHOUGH at the present time Amaryllises command primary

attention in MESSRS. VEITCH & SONS' NURSERIES AT CHELSEA, they after all only form a share of the attractions. The Hyacinths are magnificent, and with other flowers in the same house—Rhododendrons, Cinerarias, bright and sturdy; Azaleas, Cytisuses, Gueldres Roses, &c.—form a display of remarkable beauty, and well worthy of inspection. One or two plants particularly noteworthy are the following:—

— RHODODENDRON SUAVE.—This is stated to be the result of a cross between R. Edgworthii and R. ciliatum; it has stout woolly leaves, resembling those of the latter, and pure white flowers 2 to 2½ inches in diameter, and as sweet as the Honeysuckle. On this account, as well as the dwarf sturdy habit of the plant, Rhododendron suave must be regarded as an acquisition to the [great and beautiful family to which it belongs.

— AZALEA AMENA CALDWELLI.—The merits of this early and effective variety are not sufficiently known. It has the same small foliage, compact habit, and floriferous character as the species, and the flowers are similar in colour, but twice or thrice the size, which renders the plants particularly striking. For conservatory decoration in winter and spring the variety under notice is invaluable.

— WIGELA HORTENSIS NIVEA.—This is evidently admirably adapted for forcing, presuming that the wood is well ripened in the summer. It is now flowering freely, and not many plants in the house are more chastely attractive, which the sprays when cut must be amongst the most acceptable for various decorative purposes.

— ORCHIDS.—There is quite a wealth of flowers of these, and ever-arriving importations of plants render increased accommodation imperative; hence a new house, and a very fine one, is being erected for Cattleyas by Messrs. Weeks & Co. This house is 130 feet long by 22 feet wide, with a lantern roof with ventilators. It is a span-roofed structure, with side lights 2½ feet high on walls of the same height, with sliding ventilators in them. Tanks are provided in the centre of the house, and twelve rows of 4-inch pipes are provided for heating, this liberal provision preventing the necessity of having the water very hot, thus affording a genial temperature and saving fuel. This is a very superior structure in every respect, and will maintain the reputation of the builders.

— IN the paragraph (page 207) announcing a paper on THERMOMETERS by Robert H. Scott, M.A., to be read at a meeting of the Royal Meteorological Society, the date was, by the Secretary's mistake, given as "Wednesday the 21st inst.," whereas presumably the 19th inst. was intended. The *Gardeners' Magazine* in drawing attention to this remarks—"It strangely happens that they have forgotten to state in what year the event may be expected to take place." We appreciate our contemporary's acuteness, but unfortunately in another column of the same issue "the event" is announced with no indication whatever as to when it is, or was, "to take place."

— A FLORIST writing on DOUBLE PRIMROSES remarks:—"We have the old double crimson-velvet, blush, white, lilac, carmine-rose yellow-crimson, and purple, all perfect rosettes, and very beautiful. Many are lost in gardens through being left undisturbed, as they form a woody stem out of the ground, and the young roots perish as they grow out from the stem through not having soil near them to run in. We find them succeed best in a sheltered nook. They are taken up annually in the autumn, the larger clumps are divided, and are replanted in good loam with a little leaf soil, pressing the soil round the collar of the plant. Treated in this way they form good flowering plants by the spring."

— POTATOES are this season unusually abundant and cheap, large quantities being offered as low as £4 10s. per ton, and some at even lower prices. They are also generally very sound, scarcely any disease being perceptible. A correspondent in referring to the low prices being realised this year for Potatoes of first-rate quality, remarks that he has in some years at this time obtained as much as £10 per ton for Potatoes much inferior to those he is now selling at £4 to £5.

— THE well-known fragrant, sweet-scented LEMON VERBENA (Lippia citriodora) is regarded among the Spanish people as a fine stomachic and cordial. It is either used in the form of a cold decoction sweetened, or five or six leaves are put into a teacup and hot tea poured upon them. The author of a work, "Among the Spanish People," says that the flavour of the tea thus prepared "is simply delicious, and no one who has drunk his pekoe with it will ever again drink it without a sprig

of Lemon Verbena." And he further makes a statement, more important than all the rest, if true—that is, that if this decoction be used, one need "never suffer from flatulence, never be made nervous or old-maidish, never have cholera, diarrhoea or loss of appetite."

— THE WOLVERHAMPTON HORTICULTURAL SOCIETY will hold their annual Show in Col. Thorneycroft's grounds at Tettenhall, Wolverhampton, on July 14th, 15th, and 16th of the present year. Classes are provided on the schedule just issued for plants, flowers, fruit, and vegetables, many being open to any exhibitors.

— MR. R. S. BAXTER writes:—"The following NYMPHÆAS ARE NOW FLOWERING IN THE OXFORD BOTANIC GARDEN:—*N. Daubeniana*, the most useful variety for early and late flowering. It is of an azure blue colour suffused with lavender, and is very fragrant. It produces young plants from the centre of the leaves, and these if allowed to remain on the plant also produce a number of small flowers about the size of Daisies, which have a pretty appearance floating on the water. *N. cyanea*.—This also is a very free-flowering species, producing a great number of blue flowers. *N. scutifolia* differs from the above, being of a darker blue than the two former, and the petals being broader; it is also very fragrant. We have also the *Lymnocharis Humboldtii* and the *Eichornia azurea* in flower, showing the advantage of keeping aquatics in water all the year round, and reducing the temperature in winter to 60° or 62°. The tubers should be planted in tubs in some heavy loam, and a little manure placed in half the depth."

— THE usual monthly meeting of the HORTICULTURAL CLUB was held last Tuesday; Professor Michael Foster, F.R.S., and Mr. F. E. Stumfel were elected members.

— AS has been previously announced, valuable prizes are offered for fruit and vegetables by the ROYAL HORTICULTURAL SOCIETY at South Kensington during the ensuing season. The schedule of prizes is now being issued, and it appeals temptingly to cultivators far and near, as good prizes are offered for single dishes of the different kinds of fruit, which can be so easily transmitted, also for dishes of vegetables. When we find prizes of 15s., 10s., and 7s. 6d. for six bunches of Radishes, it can no longer be said that vegetables are ignored. Excellent prizes are also offered for collections of fruit and vegetables throughout the series of shows which are to be held in May, June, July, August, September, and October. At the Cottagers' Show in August we find a distinct and most commendable innovation in the form of a series of prizes ranging in value from £5 to 10s. 6d. provided for competition amongst the various local Horticultural Cottage Garden Societies and allotment holders in the country, the Secretary of each Society, or other authorised person, collecting the produce for exhibition. The schedule, which should be widely distributed, is a very practical and excellent production, and undoubtedly creditable to the compilers.

— MESSRS. CARTER & Co. have sent us examples of PURPLE SPROUTING BROCCOLI, numbered 1 and 2. The latter is a good example of the ordinary type, the former having much greater density of inflorescence, and with comparatively few leaves, resembling somewhat a rather loose, tall, pyramidal-shaped Cauliflower. The two examples before us are very dissimilar.

— WE learn from the schedule of the NORTHAMPTONSHIRE HORTICULTURAL SOCIETY that at their annual show, to be held in Delapre Park, August 4th and 6th, a prize of a very novel character will be offered by Mr. John Edward Perkins, Billing Road Nurseries, Northampton. This is the first prize in Class 9, for a group of miscellaneous plants for conservatory decoration, arranged for effect in a space of 26 by 12 feet, and consists [of a life membership of the Gardeners' Royal Benevolent Institution, value ten guineas. Such a handsome and useful prize may be expected to bring a number of competitors, and so excellent an example might be advantageously followed by other donors of special prizes. Very liberal provision is made in the numerous other classes at this Show, the prizes ranging from £12 to 1s. for plants, flowers, fruit, and vegetables. The third Seedling Potato Exhibition will be held in the Town Exchange, Northampton, on September 24th and 25th, when four classes will be provided, four prizes in each, value £1 10s. to 5s.

— GARDENING APPOINTMENTS.—Messrs. John Laing & Co., Forest Hill, inform us that the following appointments have been recently

made through them. Mr. Wm. Crump, lately at Beaurepaire Park, Basingstoke, Hants, as head gardener to J. P. Currie, Esq., Sandown House, Esher; Mr. McDonald as head gardener to R. Johnstone, Esq., Boulogne-sur-Mer, France; and Mr. Jas. Taylor, lately gardener at Storrington Rectory, Sussex, as gardener to J. Patrick, Esq., Hunstanton, Norfolk.

— WE have received Part 2 of Messrs. Cassell's "ENCYCLOPÆDIC DICTIONARY," which carries the work up to the word "Alder" in this excellent work.

— THE monthly general meeting of the members of the NOTTINGHAMSHIRE HORTICULTURAL AND BOTANICAL SOCIETY was held at the Mechanics' Institute on the 20th inst., when Mr. C. E. Pearson of the Chilwell Nurseries delivered a very interesting lecture upon garden insects. The chair was taken by Alfred Page, Esq., and there was a large attendance of gardeners and others interested in horticulture. Mr. Pearson, who takes a great interest in the Society, and who is very popular amongst the members, said he would divide his lecture into two parts, and would first deal with those insects which were inimical, and secondly with those which were friendly to the horticulturist. He spoke of the aphid as a very destructive insect, and its remarkable powers of reproduction. He next referred to the formation and habits of the caterpillar species, and said it was much to be regretted that gardeners did not sufficiently study entomology, but destroyed indiscriminately both friends and foes. He next dealt with the great order of beetles, and pointed out their destructive powers. The earwig, the ant, the cricket, slugs, snails, woodlice, red spider, mealy bug were next very ably dealt with by the lecturer, who at the conclusion of his lecture was very warmly applauded and accorded a very hearty vote of thanks. There were in the room many excellent specimens of flowers and plants which were sent by the members of the Society, amongst them being a variety of Dendrobiums and other cut Orchid blooms, sent by the Vice-President of the Society, S. Thacker, Esq.; fine pots of Strawberries, sent by Mr. Gennan, gardener to T. B. Cults, Esq., Malvern House; a splendid basket of Roses from Mr. Walker, gardener to J. W. Lewis, Esq., Hardwick House. Col. Seeley, M.P., Sherwood Lodge, sent a fine plant of Cyclamen Rosy Morn, which was much admired. Mr. Edington, Woodthorpe Grange, had some remarkably fine cut blooms of Gardenias.

LIVERPOOL HORTICULTURAL ASSOCIATION.

MARCH 19TH.

THE Exhibition held in St. George's Hall on Wednesday last is the second under the auspices of the above Society, and proved a great success as far as the exhibits and the weather were concerned. It is a question if the hall ever presented at this season of the year such a gay appearance, for it was crowded with Hyacinths and other spring-flowering plants. Many pronounced the Exhibition the finest ever held in Liverpool. The local nurserymen—Messrs. R. P. Ker & Sons, the Horticultural Company, Garston, and Messrs. T. Davies & Co., Wavertree—have by their large and varied exhibits from time to time done much towards rendering the exhibitions of this Society successful, and their contributions to the Exhibition just held were large, varied, and attractive.

HYACINTHS IN POTS.—These throughout were well represented, and the prizes offered were well contested for. Some fine blooms were staged, but, taking them as a whole, they were not quite equal in quality to those of last year. In the class for eighteen distinct varieties five collections were staged. Mr. W. Mease, gardener to C. W. Newmann, Esq., Wyncote, Allerton, was well to the front with well-grown examples. The plants were even, the spikes good, and the foliage remarkably dwarf. His best were—whites: Baroness Van Tuyll, good; Grandeur à Merveille, Mont Blanc, fine. Reds: Von Schiller, Koh-i-Noor, very good; Emmeline, grand bells; Lord Wellington, double. Dark blues: Baron Von Tuyll, Marie, Sir Charles Napier, King of the Blues. Light blues: Charles Dickens, Ozar Peter, and a fine spike of Ido, yellow. Mr. J. Kelley, gardener to R. Singlehurst, Esq., Endfield House, Aigburth, was second with fine spikes, but slightly drawn, Mr. J. Phythian, gardener to D. Walker, Esq., Forest Lawn, West Derby, securing the remaining prize with good examples. In the class for twelve varieties seven collections were staged. Mr. Kelley took the lead with handsome plants, the flowers being very fine, but slightly drawn as in his second-prize collection; they, however, included a wonderful specimen of King of the Blues. Mr. J. Wilson, gardener to J. E. Reynolds, Esq., Sandsfield Park, West Derby, was a good second. Mr. E. Cropple, gardener to T. S. Rogerson, Esq., The Priory, St. Michaels, followed with very creditable plants. For six Hyacinths Mr. G. Bennett, gardener to L. S. Abbott, Esq., Dosoris, St. Michaels, was deservedly placed first, followed by Mr. A. R. Cox, gardener to W. H. Watts, Esq., and Mr. E. Green, gardener to J. Woolwright, Esq., Mossley Hill, six or seven collections being staged in this class.

NARCISSUS.—The schedule only contained one class for these, but seven collections were staged for the three prizes offered for six pots, not less than three varieties. They were all in good condition, especially those shown by Mr. W. Mease, who was awarded the premier position for good, dwarf, well-flowered specimens of Bazelman Major, Mont Blanc, Soliel d'Or, Grand Primo, and La Parfaite. Mr. J. Jellico, gardener to F. Gossage, Esq., Camp Hill, Wootton, was second, having good Gloriosa, Mont Blanc, and Belle Aurora; Mr. E. Green being placed third.

TULIPS.—These throughout were a magnificent display, and in the very best of condition. For twelve pots, six varieties, Mr. W. Mease was to the front with grand examples of Keyzers Kroon, Rose Pepin, Vermilion Brilliant, Louis d'Or, Joost Van Vondel, and Globe de Rigaud. Mr. T. Stephenson, Park House, Waterloo, was a good second, and had good Rouge Luisante, Grand Duchess, and Grand Duc de Russie. Mr. W. Minshull, gardener to H. Nash, Esq., Ullet Road, was third. For six pots Mr. E. Green took the lead with good White Pottebakker, Keyzers Kroon, and Couronne Cardinal. Mr. C. Copple and Mr. J. Lowndes, gardener to S. S. Parker, Esq., Woodlands Road, Aigburth, were second and third. For ten pots of double varieties, not less than five distinct kinds, Mr. W. Mease was again successful, having good Golden Tournesol, Tournesol, Couronne des Roses, and Cochenelle; Mr. T. Stephenson second, and Mr. W. Evans, gardener to Mrs. Lockett, third, the last collection being a little uneven. For six pots Mr. James Hurst, gardener to W. B. Bowering, Esq., was the successful competitor. Mr. W. Bustard, gardener to J. Lewis, Esq., St. Anns, Aigburth, was awarded a first prize for pots of Crocuses, his collection being the only exhibit in that class. The schedule provided one class for Amaryllises, and Messrs. W. Mease, W. Bustard, and J. Hurst were the prizewinners.

STOVE AND GREENHOUSE PLANTS.—Though by no means numerous, the plants staged reflect the greatest credit upon the exhibitors. In the class for six, three in flower and three fine-foliage, Mr. Mease was the most successful, having a noble plant of *Latania borbonica*, *Croton Williamsii*, and *Croton Disraeli*, very fine plants; *Rhododendron Victoria Regina*, 5 feet high and 3 feet through and covered with light yellow blooms, was very conspicuous, and the same may be said of his plant of *Imantophyllum* *miniaturum* maximum, a grand form of this useful and showy plant. His other plant was a large well-flowered specimen of *Azalea Bernard Andreas*. Mr. A. R. Cox was placed second, the fine-foliage plants in this collection being good, while the three flowering plants were weak. For one stove plant in flower the same exhibitor was first with a large profusely flowered plant of *Clerodendron Balfourianum*, wonderfully fine for the season. Mr. J. Jellico was second with a well-flowered *Phaius grandifolius*. In the corresponding class for one greenhouse plant Mr. J. Lowndes took the lead with a large *Chorozema cordatum splendens* flowering freely. Second Mr. J. Stephenson, gardener to Mrs. Horsfall, Grassendale Priory, with a noble plant of *Imantophyllum* *miniaturum*; and third Mr. M. Wood, gardener to Lieut.-Col. Wilson, The Hermitage, St. Michaels, with the same variety. For one foliage plant Mr. Mease was first with his large plant of *Croton Weismanni* 7 or 8 feet through; Mr. A. R. Cox second, and Mr. W. Evans third, both staging healthy specimens.

PALMS AND CYCADS.—These were very well represented, and the plants generally were large and healthy. In the class for three plants Mr. T. Jellico was placed first with large but not the most healthy plants. Mr. S. Whitfield, gardener to J. T. Cross, Esq., Beechwood, Aigburth, was second with a little smaller but very healthy plants of *Phoenix rupicola*, *Latania borbonica*, and *Areca sapida*. Mr. E. Thrupp, gardener to Mr. Walmsley, Westwood House, Wigan, third, having a good *Cycas revoluta*. For one plant Mr. S. Whitfield was deservedly first with a very large specimen of *Kentia australis* in the best possible condition. Mr. J. Hurst following.

FERNS.—The competition in the classes devoted to these plants was keen, and the plants staged were large well-grown specimens. Mr. J. Stephenson took the leading position for four plants with *Davallia Mooreana*, large; *Alsophila Moorei*, *Adiantum formosum* fully 5 feet through, very good; and *Gymnogramma chrysophylla*. Mr. J. Phythian second, having a plant of *Adiantum excisum* 3 feet through, and a fair *A. farleyense*; Mr. A. R. Cox being the remaining prizetaker. For one plant Mr. W. Evans was first with a wonderful specimen of *Goniophlebium subauriculatum*; Mr. Jellico second with a large plant of *Davallia Mooreana*; and Mr. S. Whitfield third with a similar plant to that shown by the first-prize winner, but not quite so large.

The prizes offered for a group of miscellaneous plants arranged for effect, not to exceed a space of 50 square feet, arranged in semicircular form, only brought one exhibitor, Mr. W. Mease, who staged a very neat collection of small flowering plants.

TABLE PLANTS.—At this Society's exhibitions table plants are generally well shown, and on this occasion six or seven competitors entered in each class. The plants throughout were small and neat. For six Mr. J. Agnew, gardener to Mrs. Watts, Grassendale Park, was placed first. His best plants were *Croton interruptus aureus*, *C. Chelsoni*, *Cocos Weddeliana*, *Pandanus Veitchii*, and *Dracaena Guilloylei*. Mr. M. Wood was second with a good *Dracaena Cooperi* and *D. gracilis*; and Mr. A. R. Farrington, gardener to Mr. Gilbert Park, Mariebonne, Wigan, third. For three plants Messrs. E. Thrupp, C. Copple, and W. Bustard were the prizetakers in the order named.

AZALEAS.—These were an attractive feature of the Exhibition, and displayed a marked improvement over those staged last spring both in the size and condition of the plants generally. Three collections were staged in the open class for six distinct varieties. Mr. W. Evans took the lead with large profusely flowered pyramidal plants not named, followed by Mr. W. Mease with very much larger plants, but not so well flowered, except plants of *Flower of the Day* and *Grandis*. Mr. E. Green was third. For three plants four competitors staged, and the premier position was accorded Mr. W. Mease for profusely flowered large plants of *Souvenir de Prince Albert* and *Reine des Belges*. Mr. J. Lowndes was second with good *Stella* and *Queen of Beauties*; and Mr. J. Hurst third, having a well-grown plant of *Flag of Truce*. For one plant the successful exhibitors were Messrs. J. Lowndes, T. Gowan, gardener to — Cunningham, Esq., Mossley Hill, and Mr. W. Mease. For four plants in pots not exceeding 8 inches in diameter Mr. Gowan was again first with neat well-flowered plants, the blooms being of large size. The varieties were *Bernard Andreas*, *Princess Alice*, good; *Appollon*, and *Hercules*. Second Mr. W. Evans, with a little larger plants well bloomed, but the flowers were much smaller than in the first collection. Third Mr. E. Green with rather looser specimens. For six plants of *Azalea mollis* Messrs. W. Bustard and W. Mease were the prizetakers, both showing compact bushes.

Cinerarias were all that could be desired, many of the plants having heads of bloom 2 feet or more over, and the plants not more than 18 inches high. The competition was good, eight lots being staged. Mr. J. Agnew took the lead, followed by Messrs. J. Stephenson and J. Wilson, the last having smaller but very dwarf plants with large flowers. *Primulas* were not

so good as we have seen them, the majority of the plants being large with small flowers.

Cyclamens, *Lily of the Valley*, and *Callas* were fairly represented in the various classes, the last-mentioned being particularly good; while the *Lily of the Valley* was very fine, the spikes of some of the examples being large and the foliage very rich. The principal prizetakers were Messrs. J. Jellico, Stephenson, W. Evans, G. Bennett, W. Mease, Wilson, and Copple.

Other forced plants added very much to the interest and beauty of the Exhibition. For six, Mr. Lowndes gained the first position with a good collection, including a good plant of *Azalea amoena*, *Azalea Appollis*, a beautiful yellow; *A. mollis*, *Rhododendron Vesta*, and *Deutzia gracilis*. Mr. Mease was second with a striking plant of *Rhododendron fragrans*, *Rhododendron Mad. Wagner*, and *Azalea amoena*. *Roses* were not numerous nor extra good. For twelve cut blooms there were two exhibits, the flowers were not large, but very creditable for this time of the year. Mr. A. Collins, gardener to S. Smith, Esq., Prince's Park, took the first award, and Mr. G. Park the second.

Only two collections of hardy herbaceous and bulbous plants were staged for the three prizes offered, and this is to be regretted, for nothing in the Exhibition created greater interest or attraction. Messrs. J. Dickson and Sons, Newton Nurseries, Chester, were accorded the premier position, and Mr. W. Meason second for a very neat and interesting collection. The most striking in the Chester collection were *Primula villosa nivea*, white; *P. Sieboldi*, good; *P. rosea*, *Narcissus laurifolius* Emperor, *N. bicolor* Empress, *N. odoratus*, *N. Trumpet Major*, *Mertensia virginica*, and *Iris Beauty*.

ORCHIDS.—The prizes offered for these popular plants were well contested for, and their delicate curious flowers attracted great interest, for the public crowded round them the whole of the day. Mr. E. Green took the lead for four plants, having a good *Phalaenopsis Schilleriana*, *Dendrobium chrysotoxum* with eight spikes of flowers, and *D. thyrsiflorum*, a fine plant with the same number of spikes, and a fair plant of *Cattleya Trianae* with nine flowers. Mr. J. Wilson was second with *Odontoglossum Alexandrae*, good variety, large spike, *Odontoglossum aureum purpureum*, *Dendrobium Wardianum*, healthy; and *D. nobile*, a well-flowered specimen. Third, Mr. J. Edwards, gardener to Shadford Walker, Esq., 88, Rodney Street, Liverpool, with *Dendrobium crassinode*, with seven flowering bulbs; *Cattleya Trianae*, five flowers; *D. Wardianum*, fair; and *Odontoglossum maculatum superbum*. For one Orchid Mr. E. Green was first with *Phalaenopsis Schilleriana*. Mr. A. Smith, gardener to D. de Yborrondo, second with *Dendrobium crassinode*, and Mr. R. G. Michie, gardener to E. L. Wigan, Esq., Sefton Park, third, having a good *Dendrobium primulinum*, fine form with four large-flowering pseudobulbs.

MISCELLANEOUS EXHIBITS.—Messrs. R. P. Ker & Sons, Aigburth Nursery, contributed a magnificent display of *Hyacinths* and *Tulips*, some 250 or 300 of the former. The same firm also had a group of that useful sweet-scented plant, *Choisya ternata*, and *Staphylea colchica* in very fine condition. The Horticultural Company (John Cowan), Garston, had about 100 plants of a dwarf large-flowered strain of *Cinerarias*. The plants were not more than 9 inches to 1 foot high, and the head of bloom nearly as much in diameter, many of the individual flowers being 3 inches over; they also staged a collection of foliage and spring-flowering plants associated together, and edged with *Adiantum Pacotti*. Messrs. Davies & Co., Wavertree, had a mixed collection of spring-flowering plants, which were highly effective and most creditable to them. Mr. A. Waterer, Knap Hill Nursery, Woking, staged a magnificent display of *Primroses* and *Polyanthuses* in pots, which were much admired; also plants of *Andromeda japonica* splendidly flowered, for which a certificate of merit was awarded. Mr. J. Gore, gardener to T. Holden, Esq., Ullet Road, a splendid plant of well-bloomed *Imantophyllum* *miniaturum*, and for which a cultural certificate was awarded. Mr. Wells staged his new *Violet Wellsianum*, which was highly commended, the Judges not thinking it sufficiently free for a first-class certificate. H. Holland, Esq., contributed a number of Orchids, and Messrs. J. Dickson & Sons a small collection of choice named *Auriculas*. Mr. James, the well-known grower of florist flowers, showed a collection of *Cineraria* blooms, principally selfs, which for shape and colour could not be surpassed. The arrangement of the Exhibition throughout reflected great credit upon the Chairman, Mr. Richardson, Mr. Gore the Secretary, and the Committee.

A NOTE ON RHUBARB—HAWKES' CHAMPAGNE.

It appears to me that Rhubarb as a garden crop has a peculiar position. By some gardeners it is talked about and treated with a half contemptuous sneer on the lip, as if it was just tolerated in the garden by reason of some fad of the owner's. By others it is grown anyhow in any corner, with a "Oh, it doesn't signify, it's only Rhubarb, you know" remark when spoken to about it; whilst there are gardeners who care for Rhubarb much, and who give large attention to it, both as to its cultivation and the many varieties there are in growth now-a-days. Rhubarb has also a peculiar position as to its own identity. With many it is erroneously considered to be a fruit, having, as it has, the juicy properties of fruit, and even in the minds of those who ought to know better, when these fruit properties are taken into account, there is an amusing amount of confusion as to whether it is a fruit or a vegetable. In America it is almost invariably called the Pie Plant, and the name is expressive. That settles the purpose at any rate, if not the position of Rhubarb. Commercially Rhubarb ought to occupy a good position in every garden. Its value in the market is great, and its value as a factor in the sum of the public health is greater still. Rhubarb coming freely into use in the critical spring months of the year has an influence on the health of the body politic which is worth more than a passing consideration.

Culturally Rhubarb is the easiest crop to grow of any in the garden. Deep well-manured soil, an open position, with the proper

varieties to grow, and a crop of this esculent is certain. The question of varieties to grow is an important one; it is really the reason why I am writing on Rhubarb now. Anybody can grow Rhubarb, but it is not everyone that can secure the variety or varieties to grow. I have been testing all the culinary varieties of Rhubarb that I could get now for a few years. I have also tried one or two varieties as to decoration, but that is not my subject at present, and I believe I should reduce the cooking Rhubarbs to three varieties. I put Hawkes' Champagne first for earliness, Johnstone's St. Martin's for general summer use, and Victoria for late work and for strong forcing purposes. Hawkes' Champagne is a fortnight before anything else; for instance (April 18th), this is 2 feet high. Johnstone's is 1 foot high, and Victoria is only just moving. Hawkes' is a beautiful Rhubarb too, such a good colour, and is in great demand by our cook for syrups and stewing purposes. This is not in the market yet I understand; but Mr. Gilbert of Burghley, who is never so happy as when giving to friends some good thing, sent it to me in quantity. Johnstone's is a very continuous bearer through the summer, and for large sticks for forcing nothing excels Victoria. I have forced Hawke's this year, and it is very pretty and good, but does not give very large sticks. It is a very good sort for all that, and it is to call attention to it that I write this note.—H., Notts.

RHODODENDRON VEITCHIANUM.

OWING to the number of fine varieties of greenhouse Rhododendrons which have been introduced to cultivation by Messrs. Veitch and others of late years, this fine species, which is of older date, has been somewhat neglected.

If cultivators of these plants could, however, see a specimen now flowering in the greenhouses at Oakholme, Sheffield, the residence of Thomas Wilson, Esq., they would, I believe, agree with me that it is one of the best ever introduced. The plant in question is trained over a stone wall with a south aspect, but is screened from the direct rays of the sun by a bank of large Camellias immediately in front. The space of wall occupied by the plant is 100 square feet, which at the present time is covered with large white and beautifully fringed blooms. I counted the expanded blooms and trusses. The number of expanded blooms was 195, of trusses 135, mostly of three blooms each, seventy of which were open and sixty-five still to open. I have sent you a specimen truss.

Mr. Hannah (Mr. Wilson's able gardener) has grown the specimen from a small plant 6 inches high, with a single shoot, thirteen years ago. For the first five years it was grown as a small plant in a pot. Eight years ago it was planted out in the position it now occupies in a border 1 foot deep, 1 foot wide, and about 4 feet long, which is bounded by the flagged pathway. The compost in which it is planted is fibrous peat, with a liberal admixture of silver sand. In planting it out Mr. Hannah bent its stem into somewhat the shape of the letter S to reduce its length of stem, and to that he partly attributes its remarkable floriferousness. I have known it almost from the time it was planted, and it has annually been covered with bloom.—W. K. W.

[A truss of three fine pure white and highly fragrant flowers accompanied this communication, and proved how well the plant is grown at Oakholme. This is an extremely handsome species and well deserves all that has been said in its praise. A wood engraving of a flower and foliage was given in this Journal, page 235, vol. xxxvi., March 27th, 1879.]

THE KEW ROCKERY.

For many years the only rockery at Kew was one of very moderate extent, and no pretensions to picturesque beauty, situated near the house devoted to economic plants. This served as an abode for a small collection of alpine plants, which succeeded fairly well, but were by no means representative in numbers of the multitudes of interesting and handsome species which the American, Asiatic, and European ranges of mountains have furnished to our gardens in recent years. The insufficiency of this, especially in a national garden, was long felt, and many efforts were made to provide more adequate accommodation for these plants, but without avail until about two years since, when a memorial was presented to the Commissioners on the subject, the result of which was that a sum of £500 was specially granted for the construction of a new rockery that should be a credit to the establishment, and permit a greater number of plants to be grown in suitable quarters. This was probably somewhat hastened by the large and valuable collection of plants bequeathed to the nation by Mr. Joad of Wimbledon, and consequently in February, 1881, the much-needed work was commenced.

The site chosen was the piece of level turf between the wall by the herbaceous ground and the Orchid house, which is about 500 feet long, and runs nearly due north and south. The subsoil being a light sandy gravel, no artificial drainage was required; and the general form of the rockery being determined upon, it was only necessary to remove a portion of the soil to the depth of about 6 or 7 feet below the general level, raising mounds on each side varying in height above the central path to from 6 to 12 feet. The path is 10 feet wide, and descending by a gradual slope from the north end, and ascending at the south extremity by a few steps winding considerably in its course, thus giving a great variety of aspects to accommodate plants of very diverse requirements. Some have considered it a defect in the construction of the rockery that the path should be for

the greater portion by its length quite level, but to have altered this in a suitable manner would have occasioned much greater expense than could be incurred at the time, and unless thoroughly done it would have been no improvement on its present form.

The stone principally employed is much-weathered boulders of limestone from Cheddar, some of which are extremely picturesque, worn and perforated, tufa, granite, sandstone, and some composition. With the exception of a few portions no attempt has been made to arrange the rocks in stratigraphical order, as the principal object was to provide nooks, recesses, and "pockets" of a fitting character for the plants, at the same time studying picturesque effect as far as possible. The background and highest portions are occupied with Rhododendrons and small specimen Box trees, behind these being a sufficient number of larger Conifers to afford some shelter without casting too dense a shade, and these improve the effect greatly.

Recesses or alcoves are provided at intervals and devoted to special plants, such as those abounding in peat districts, others growing in swamps, on the seashore, &c., all of which have their peculiarities carefully studied and suitable soils supplied. These constitute a series of highly interesting features, which are still further increased by the nooks of Daffodils, Lilies, Hellebores, and Primroses, which with many others yield a continual succession of flowers from early spring to late autumn. At the present time the Daffodils are in fine condition, while some fine clumps of Polyanthus and Primroses are charmingly fresh and bright. Near the north end is what is termed the "Rootery," a great number of roots of Elms and Beeches affording convenient nooks for trailing or shade-loving plants of many kinds.

To give a more detailed review of the rockery and principal plants employed on it, we may commence at the south end, leading from the Cumberland Gate, where the first object of interest is a large *Osmunda regalis*, 5 or 6 feet in diameter, and nearly a ton in weight, round which on a nearly vertical piece of work many of the common British Ferns grow luxuriantly. Dotted here and there are small patches of Squills, the Spring Leucium, and common Daffodils. Some of the stones are very interesting on account of the *Asplenium Ruta muraria* growing in the crevices, which was imported with them from Cheddar, and has taken to its new home readily. On the opposite side is a deep recess occupied with a fine specimen of *Arundinaria falcata*, the side rocks being covered with numerous varieties of British and hardy Ferns. Near by is a large patch of *Primula glaucescens* in fine health, and promising a good show of flowers.

The bog garden and waterfall, of which a view is given in our engraving (fig. 56), is surrounded with vertical walls to the height of 5 or 6 feet, and is the only attempt made at geological formation. At the farthest point from the walk it narrows into a dome, and over a natural-looking projected ledge the water falls into a basin on the bog level, and is carried away by a small stream that winds through it, finally escaping in the surface-water drain. The stream is so constructed as to irrigate the bog to any degree of dampness desired, and at the back of the basin Filmy Ferns have been planted and are now in a fair condition of health, although the position is rather exposed. On a ledge well shaded and under the influence of the saturated atmosphere, *Campanula cenisia* is quite at home, as also is the white variety of *Silene acaulis*; and under an overhanging ledge *Myosotidium nobile*, the New Zealand Forget-me-not, is in perfect health. *Sarracenia purpurea* in the bog is happy; *Orchis foliosa* and the so-called *Juncus zebraus* and *striatus* are fair examples of the size they attain under favourable circumstances and without disturbance. In the niches facing the walk the pretty *Ramondia pyrenaica* has taken firm hold. During last year numerous plants of *Hyacinthus candicans* were handsome on the rock at the side of the waterfall, flowering very strongly, as shown in the photograph.

On a small piece of neat work near this are many varieties, such as *Saxifraga marginata*, *Calceolaria plantaginea*, *Silene Elizabethæ*, *Saponaria lutea*, and *S. cæspitosa*, Edelweiss, and a fine specimen of *Saxifraga longifolia* nearly a foot in diameter. On a plateau or terrace just above this, and having a graceful curve, such plants as *Convolvulus mauritanicus*, *Tropæolum polyphyllum*, speciosum, and tricolorum, *Potentilla tridentata*, and many other plants find a pleasant home, all of which are extremely showy in their season. Further on we come to the home of *Androsace obtusifolia*, *A. lanuginosa*, &c., and a large patch of *Primula floribunda* is very handsome. *Hypericum Burseri*, also rare, and *Primulas Muretiana*, *minima*, *pedemontana*, *Clusiana*, *Wulfeniana*, and some pretty varieties of *P. denticulata* are very interesting. *Kniphofia caulescens* is also very healthy in a protected corner, although the one exposed on the top is dwarfer and more sturdy.

In a bed devoted to seaside plants *Mertensia maritima*, *Silene maritima*, *Plantago maritima*, *Armeria maritima*, *Eryngium maritimum*, *Crithmum maritimum*, and *Convolvulus Soldanella*, are doing well, the project being quite a success. In the "pockets" around this the New Zealand Veronicas, *carnosula*, *pinguicula*, *Haastii*, *elliptica*, *lævis*, *chatamica*, and many others are predominant, and near the top a fine specimen of the large and pretty yellow Rose from Afghanistan, *Rosa acæ*. The hardy Orchids are grown in a recess adjoining another vertical wall, and these planted have established themselves well under a dense carpet of *Veronica repens*. They are planted on terraces formed by a semicircle of roots. One part of the bed is devoted to florists' Primulas, and they are exceedingly pretty, showing some very fine colours. One more remarkable than the others is a hybrid between *P. elatior* and *P. vulgaris* raised by Mr. Christie, and which partakes of the character of the two species. On the wall, which is surrounded by rustic work, *Primula obconica* promises well, as also does *P. verticillata*, *Iberis jucunda*, *Arabis blepharophylla*, the Cheddar Pink,

and *Lychnis alpina*. There is also a specimen of the rare *Oxalis eneaphylla*, as much at home as it would be in the Falkland Islands. The new and rare *Rhododendron afghanicum* is in perfect health. Among the roots, where the taller and coarser plants are grown, patches of *Chionodoxa Lucilæ*, *Cyclamen hederæfolium*, *Primula japonica*, and *P. denticulata* are very pretty on the other side, and going from north end we come to the rare *Daphne Blaygayana* and *D. rupestris*, throwing their sweet-scented flowers out of the crevices. *Doronicum plantaginicum excelsum* is beautifully in flower, and *Iberis saxatilis*, near which is the pretty *Polygala Chamæbuxus rosea*, are quite happy. Recesses are given to Himalayan *Rhododendrons*, and *R. ciliatum* is showing its pretty rosy-tinted flowers in profusion without the slightest protection.

Peat and shade-loving plants are well attended to, a large bed being entirely devoted to them. It is surrounded by large roots, close under which are nestling such plants as *Arum pictum*, *Arisarum orientale*, and others. *Dentaria bulbifera* and *digitata*, *Clintonia Andrewsii*, and *Spigelia marilandica* being particularly noticeable. *Lilium giganteum*, *L. cordifolium*, *auratum*, and a few others are also planted here. A fine plant of *Helonias bullata* is showing flower. *Trilliums grandiflorum*, *sessile*, *foetidum*, &c., along with a rare species of *Swertia*, *S. multicaulis*

partment, Mr. D. Dewar, the whole of it being completed and opened to the public in about three months from its commencement.

BRISTOL SPRING SHOW.

MARCH 19TH AND 20TH.

THE fourteenth annual Exhibition of spring flowers arranged by the well-known Clifton Horticultural Society, and held in the Victoria Rooms, Clifton, was generally admitted to be the best in every respect yet held. Classes were provided for all kinds of flowering plants in season, as well as for fine-foliage plants, cut flowers, and fruit, in nearly all of which the competition was close and good. The Committee of gardeners under the direction of the active Hon. Secretary, Mr. G. Webley, arranged the Exhibition in their usual excellent style, and to the evident satisfaction of all who visited it.

Hyacinths were the principal feature of the Show, and of these there were immense numbers shown, the majority of which were highly creditable to the growers. Tulips, Narcissus, and Crocuses were also well represented. The principal prizes for bulbs were given by the Treasurer, W. Derham, Esq., and were respectively of the value of three, two, and one guinea.

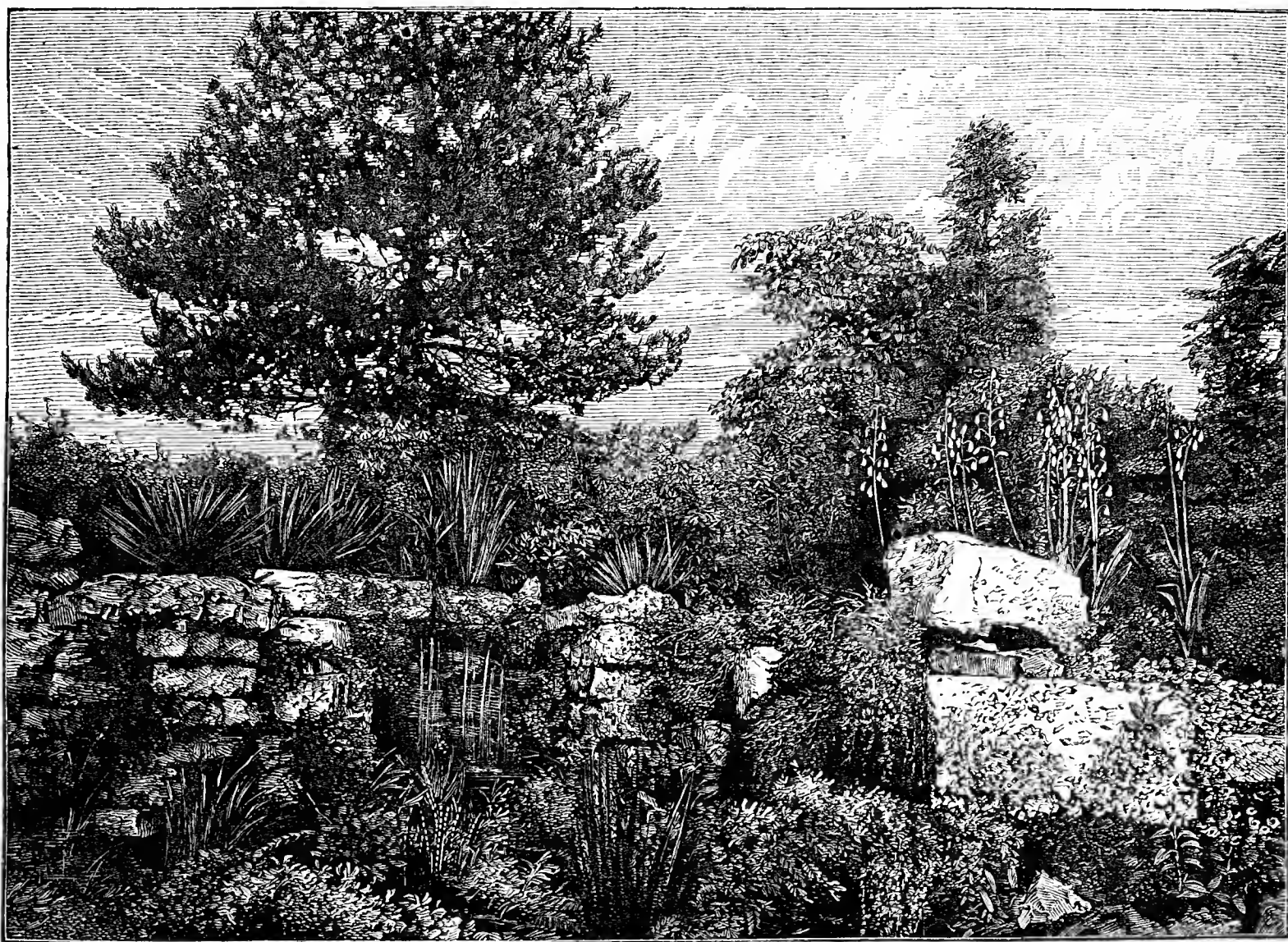


FIG. 56.—THE KEW ROCKERY.

from the Himalayas, *Cypripedium pubescens*, *arietinum*, *macranthum*, and *japonicum* are quite at home. Near here *Mitchella repens* and a collection of *Pyrolas* are also doing well, *Rhodostachys Andina*, and a fine clump of *Pulmonaria saccharata*. In the front is a charming *Lychnis Lagasæ* nestling on a ledge, is healthy and showing plenty of flower. *Morina Coulteriana* and strong plants of the pretty *Verbascum olympicum* are fine. A large patch of *Saxifraga valdensis* on a sloping bank looks beautiful, as also does the rare *Gilia Brandegii* and *Androsace sarmentosa*. In a bed on which the low-growing *Salixes* are grown bulbs of *Muscari* have been planted, and now they are flowering freely. A large plant of *Aciphylla squarrosa*, healthy, and in a small bed at the cool end a large clump of *Gentiana lutea*, together with *Olivieri*, *septemfida*, and the variety *cordifolia*, with *Frœlichii*, *plogifolia*, *decumbens*, *acaulis alba*, *verna*, *affinis*, *Kaufmanniana*, *Walujewi*, *Fetisowii*, *calycosa*, *umbellata*, *macrocalyx*, and *asclepiadea alba*. At the end, and next the Ferns a large bed is divided into four or five divisions, in which are grown *Lonicera borealis*, *Rubus chamæmorus*, *Campanula pulla*, &c.

It only remains to add that the general plan was designed by Professor Dyer, who superintended the construction, his ideas being satisfactorily carried into execution by the foreman of the herbaceous de-

the collection to consist of eighteen Hyacinths, distinct, and twelve pots of Tulips. Mr. J. Marsh, gardener to M. Dunlop, Esq., took the first prize with even and excellent examples. Hyacinths King of the Blues, L'Or d'Australie, C. Dickens, Princess Mary of Cambridge, Lord Derby, Mont Blanc, Haydn, Fabiola, Pineman, Paix de l'Europe, L'Innocence, Gigantea, Grandeur à Merveille, Gigantea, French Khan, General Pelliser, and Lord Macaulay. Of the Tulips the best were Vermillon Brilliant, Murillo, Vuurbaak, Proserpine, Yellow Prince, Kaiser Kroon, Joost Van Vondel, White Pottebakker, Tournesol, Imperator Rubrorum, and Rex Rubrorum. Mr. H. K. Ward was a very close second, his group including many of the above-named varieties, and in addition extra fine specimens of Hyacinths Baroness Von Tuyl, Blondin, and Czar Peter. The third prize was awarded to Mr. A. Hancock, gardener to A. W. Summers, Esq., this exhibitor having a creditable collection, among which were several good new sorts. Mr. G. Webley took the lead in a very large class devoted to twelve Hyacinths, distinct, his most noteworthy spikes being of Pineman, L'Innocence, Lord Derby, General Havelock, King of the Blues, Admiral de Coligny, and Grand Lilas. Mr. W. Fox, gardener to Mrs. Hurle, had among others excellent examples of Von Schiller, Mont Blanc, and General Havelock, and took the second prize; the remaining prize going to Mrs. Gilbert Howes, and there were seven other good collections staged. In the open class for twelve Hyacinths in six distinct varieties Mr. J. Cypher took the lead with perfect examples of

L'Innocence, Anna, Von Schiller, Czar Peter, General Havelock, and Vieur Cook. To these was also awarded the silver medal of the Royal Horticultural Society offered for the best twelve Hyacinths in the Show. Mr. W. Dobson was a good second in this class. The Messrs. Garaway offered special prizes for twelve Hyacinths in four distinct colours, and Mr. Webley was again in the first position, the second prize being won by Mr. C. Taggett, who was followed by Mr. W. Fox, and there were several other good collections staged. Mr. G. Milliner, gardener to Miss Richardson, had the best six Hyacinths, distinct, the remaining prizes going to Messrs. Fox and S. P. Budd in the order named.

The best four pots of single Tulips, as well as double varieties, were staged by Mr. C. Taggett, who had fresh examples of well-known varieties; and Messrs. Webley, Mr. O'Brien, gardener to R. B. King, Esq., H. K. Ward, and G. Milliner were the other prizewinners in the two well-filled classes. Mr. Taggett had also the best four pots of the attractive Tulip Vermillon Brilliant, of which there were a great number staged. Mr. W. Fox staged the best six pots of Polyanthus Narcissus, and was followed by Messrs. G. Howe, gardener to L. Fry, Esq., M.P., and Mr. O'Brien, all having capital examples of such sorts as Grande Monarque, Queen Victoria, Groot Voorst, Double Roman, Soleil d'Or, and Gloriosa. Crocuses were shown better than usual, the prizewinners being Messrs. W. H. Lintern, gardener to W. Butler, Esq., W. Dobson, and C. Taggett.

Probably the greatest attraction were the three beautiful groups of miscellaneous plants, arranged on a space 12 feet by 7 feet, the first prize for which was a silver cup. The greater portion of the plants employed were in flower, among these being many Orchids. Mr. F. Perry, gardener to H. Cruger Miles, Esq., won the cup with a formal closely packed group, in which were several well-flowered examples of *Dendrobium nobile*, *D. fimbriatum oculatum*, *Oncidium cuculatum*, *Odontoglossum Inscayii*, *Laelia harpophylla*, *Odontoglossum Andersoni* with two fine spikes, *Cattleya Trianae*, and *Cypripedium barbatum grandiflorum*, fine. Besides these there were many well-flowered Azaleas, Ericas, Anthuriums, Acacias, Roses, Amaryllises, and Deutzias. Mr. W. Rye, gardener to J. Derham, Esq., was a close second, his group being also very formal and gay. Included were well-flowered specimens of *Imantophyllum miniatum*, *Pimelea spectabilis*, *Erica Cavendishiana*, Azaleas, Lachenalias, and a few Orchids, of which the best was the beautiful and distinct *Cypripedium barbatum Crossianum*. The third-prize group, arranged by Messrs. W. Maule & Son, was in a very different style from the others, and was, in fact, too free and open for the materials at command. Orchids largely predominated, and of these the most conspicuous were *Dendrobium Wardianum*, *D. macrophyllum*, *D. Parishii*, *D. Pierardii*, *D. thyrsoiflorum*, *D. chrysotoxum*, *Lycaste Skinnerii*, *Celogyne cristata*, *Angraecum citratum*, *Vanda tricolor*, and *Cymbidium eburneum*.

Mr. Rye staged the best six fine-foliaged plants, and in addition to the money prize secured a Banksian silver medal of the Royal Horticultural Society. The group consisted of fine healthy specimens of *Crotona Weismannii* and *interruptus*, *Dracaena Draco*, *Latania borbonica*, *Areca sapida*, and *Pandanus Veitchii*. The second prize was awarded to Mr. J. H. Stevens, gardener to S. Budgett, Esq., and the third to Mr. Hancock, the specimens in each case being large and healthy. Mr. Stevens took the lead with four specimens, and was followed by Messrs. H. K. Ward and W. Rye, all staging creditable specimens. The best four stove or greenhouse flowering plants were staged by Mr. F. Perry, these consisting of fresh well-flowered specimens of *Azalea Roi Leopold*, *Erica elegans*, *Genetyllis tulipifera*, and a *Pimelea*. In Mr. Hancock's second-prize collection was a beautifully flowered specimen of *Rhododendron Princess Royal*; Mr. Rye took the remaining prize. For a single specimen Mr. H. Stevens was first with *Rhododendron Gibsoni* in good condition, and was followed by Mr. W. Bannister, gardener to H. St. Vincent Ames, Esq., who had a fine plant of *Chorozema illicifolium*, Mr. Hancock being third with a good *Franciscea confertiflora*. A considerable number of well-flowered trained Azaleas were shown, the best four specimens, consisting of Mrs. Turner, Model, Dr. Jereniker, and Iveryana, were staged by Mr. F. Edwards, gardener to J. Lysaght, Esq. Other successful exhibitors in the different Azalea classes were Messrs. C. Taggett, Hancock, W. Fox, G. Howe, F. Perry, H. Stevens, H. Spry, gardener to Mrs. G. F. Prideaux, and W. Rye. Mr. G. Howe had the best four *Rhododendrons*, and Messrs. Maule & Son were first with a group of forced hardy plants, both classes being poor, and contained many of the worst exhibits in the Show. Amaryllis were well shown by Messrs. G. Howe, M. O'Brien, and W. Fox, who took the prizes in the order named. Table plants were well shown by Messrs. H. Stevens, H. Spry, and G. H. Shelton, gardener to H. K. Wait, Esq., and small Ferns by Messrs. Stevens, J. Loosemore, gardener to W. Cooper, Esq., and J. Marshall, gardener to M. Whitwill, Esq., and took the prizes in the order named in each instance. Mr. Rye had the best group of specimen Ferns, the second prize in a good class going to Mr. H. Bannister. Primulas were well shown by Messrs. Stevens, W. Bannister, and J. Marshall. Cinerarias by Messrs. F. Edwards, G. Milliner, and F. Perry. Mignonette by Messrs. G. Howe, F. Edwards, and H. Spry. Lily of the Valley by G. Howe and G. W. Shelton. Cyclamens by Messrs. S. Blacker, gardener to Miss Charles; G. Howe, Messrs. Maule. Tricolor Pelargoniums by Messrs. C. Taggett and G. Milliner; and Violets by E. S. Cole and H. Stevens, the prizes being awarded in the order named in each instance.

Mr. W. H. Mould had the best stand of cut Roses, among these being good blooms of *Maréchal Niel*, *Niphetos*, *M. Bosanquet*, *Goubalt*, and *Souvenir d'un Ami*. Mr. S. Blacker was a good second, his best blooms being of *Duke of Edinburgh* and *Madame Berard*. The hand bouquets and vases were very good as usual, but the ladies' decisions were rather inconsistent, especially in the classes for the former. Mr. E. S. Cole was awarded the first prize for a lightly arranged bouquet of medium-size, in which Orchids and Roses were principally employed, the second prize going to Mr. J. Cypher, Cheltenham, for a very fine and perfectly arranged bouquet, in which *Phalaenopsis*, *Cattleyas*, *Odontoglossums*, *Maréchal Niel* Roses, and Lily of the Valley were conspicuous. Mr. W. H. Mould took the remaining prize. Messrs. H. Stevens, H. K. Ward, and J. Loosemore were the successful exhibitors of a bouquet from which Orchids were excluded, but all appeared to have too many choice flowers at their disposal. Messrs. E. T. Hill, E. S. Cole, and M. Hookings had the best vases of cut flowers, and all were light and elegant.

Grapes were not well shown, but the few Pears and Apples in competition were of good quality. A good dish of *Beurré Rance* gained Mr. R. H.

Taylor the first prize for Pears, Mr. J. Marshall following with a good dish of *Easter Beurré*. Mr. G. Milliner had a fine dish of *Blenheim Pippin* Apples, and took the first prize, Mr. Bannister following with *Cox's Orange Pippin*, sound and good in quality, Mr. J. Marshall being third with a good dish of *Scarlet Nonpareil*. Mr. J. Pullin was the only exhibitor of Cucumbers, and was awarded the first prize for a remarkably fine brace of *Telegraph*. Several very fine Mushrooms, and which were grown in a Potato frame, were shown by Mr. Aplin, gardener to W. M. Baker, Esq., Hasfield Court, Gloucester, and were highly commended. From Mr. Vallance, gardener to Dorien Smith, Esq., Scilly Isles, came a charming group of cut *Narcissus* in great variety, and Mr. Bloodworth had a fine group of *Roses* and other plants not for competition. Messrs. Garaway & Co., Durdham Down Nurseries, staged upwards of 200 Hyacinths, all being highly creditable to this well-known Bristol firm. Such varieties as *Princess Mary* of Cambridge, *Lord Byron*, *Haydn*, *Lord Derby*, *President Lincoln*, *Cavaignac*, *Marchioness of Lorne*, *L'Innocence*, and *Vuurbaak* were among the best shown by them, and the group added materially to the general effect.

ROYAL METEOROLOGICAL SOCIETY.

THE usual monthly meeting of this Society was held on Wednesday evening, the 19th inst., at the Institution of Civil Engineers, Mr. R. H. Scott, F.R.S., President, in the chair. Messrs. W. Bailey, M.A., W. L. Boire, A. L. Ford, N. Leopold, A. F. Lindemann, F.R.A.S., and Rev. E. B. Smith were elected Fellows of the Society.

The President read a paper entitled, "Brief Notes on the History of Thermometers." He stated that the subject had been handled in a comprehensive manner by Mons. Renou a few years ago in the *Annuaire* of the French Meteorological Society, so that he should merely mention some of the leading points. The name of the actual inventor of the instrument is unknown. The earliest mention of it, as an instrument then fifty years old, was in a work by Dr. R. Fludd, published in 1638. Bacon, who died in 1636, also mentions it. The earliest thermometers were really sympiezometers, as the end of the tube was open and plunged into water, which rose or fell in the tube as the air in the bulb was expanded or contracted. Such instruments were, of course, affected by pressure as well as temperature, as Pascal soon discovered. However, simultaneously with such instruments, thermometers with closed tubes had been made at Florence, and some of these old instruments were shown at the Loan Collection of Scientific Apparatus at South Kensington in 1876. They are in the collection of the Florentine Academy, and in general principle of construction they are identical with modern thermometers. Passing on to the instrument as we now have it, Mr. Scott said that most of the improvements in construction in the earliest days of the instrument were due to Englishmen. Robert Hooke suggested the use of the freezing point, Halley the use of the boiling point, and the employment of mercury instead of spirit, and Newton was the first to mention blood heat. Fahrenheit was a German by birth, but was a protégé of James I., and died in England. Réaumur's thermometer in its final form owes its origin to De Luc, while the centigrade thermometer, almost universally attributed to Celsius, was really invented by Linnæus. Celsius's instrument had its scale the reverse way, the boiling point being 0° and the freezing point 100°. Mr. Scott then gave a brief account of some of the principal forms of self-registering and self-recording thermometers.

After the reading of this paper the meeting was adjourned, in order to afford the Fellows and their friends an opportunity of inspecting the exhibition of thermometers and of instruments recently invented. This exhibition was a most interesting one, and embraced 136 exhibits. The thermometers were classified as follows:—1, Standard; 2, Maximum; 3, Minimum; 4, Combined Maximum and Minimum; 5, Metallic; 6, Self-Recording; 7, Solar Radiation; 8, Sea; 9, Earth and Well; 10, Thermometers used for special purposes; 11, Thermometers with various forms of bulbs, scales, &c.; and 12, Miscellaneous Thermometers. In addition to these, there were also exhibited various patterns of thermometer screens, as well as several new meteorological instruments, together with drawings, photographs, &c.

NARCISSUS PALLIDUS PRÆCOX.

THE great value of this Daffodil consists in its flowering extremely early in the year, and this season Mr. Barr has had flowers in his nursery at Tooting from the first week in January. On February 12th Mr. Barr exhibited a number of flowers at South Kensington, which were greatly admired, and a first-class certificate was readily granted for the variety. The colour is a delicate pale clear yellow, the crown being slightly darker than the petals, 1½ inch deep, with a slightly recurved and irregularly cut margin, the petals being nearly white, elliptical in form and spreading regularly. It is very free, and grows in any ordinary garden soil that is not excessively wet or heavy.

N. pseudo-Narcissus var. *moschatus* is somewhat of the same type, but is much later in flowering, and easily recognised on comparison with *N. pallidus præcox*. It is somewhat curious that both the names adopted for this variety are synonyms of other and quite distinct sorts. Thus *N. pallidus* is a synonym of *M. dubius*, while *Helena præcox* was the title given by Tenore to the plant now known as *N. tazetta* var. *italicus*.

GLADIOLI DISEASE.—Kindly permit me to say, while agreeing generally with what "D., Deal," urges in your last issue, I am particularly inclined to concur that "climate" has much to do with success. But instead of "climate," which we cannot control, I would use the word "aspect," and that is to a great extent the secret—if I may so call it—of whatever success I have had in *Gladiolus* culture. The borders I grow them in are wholly closed against the north winds, and slope to the

south at a very steep angle, thereby securing every ray of sunshine. It is curious that the most successful amateur gentleman grower and exhibitor in Ireland, J. F. Lombard, Esq., Rathmines, Dublin, Mr. F. W. Burbidge tells me, has a garden sloping to the south in the same way. The heat I once experienced going to Fontainebleau I admit we never have in Ireland, but by planting early my Gladioli mature before December. —W. J. MURPHY.

ROYAL HORTICULTURAL SOCIETY.

MARCH 25TH.

THE second Promenade Show of the season was exceedingly well attended by exhibitors and Fellows, and during the afternoon quite a large company assembled. The conservatory was filled with exhibits, the groups of Hyacinths forming the chief feature, though the miscellaneous contributions were both numerous and interesting.

FRUIT COMMITTEE.—John E. Lane, Esq., in the chair. Present, Messrs. J. Roberts, J. Willard, J. C. Mundell, W. Denning, S. Lyon, C. Silverlock

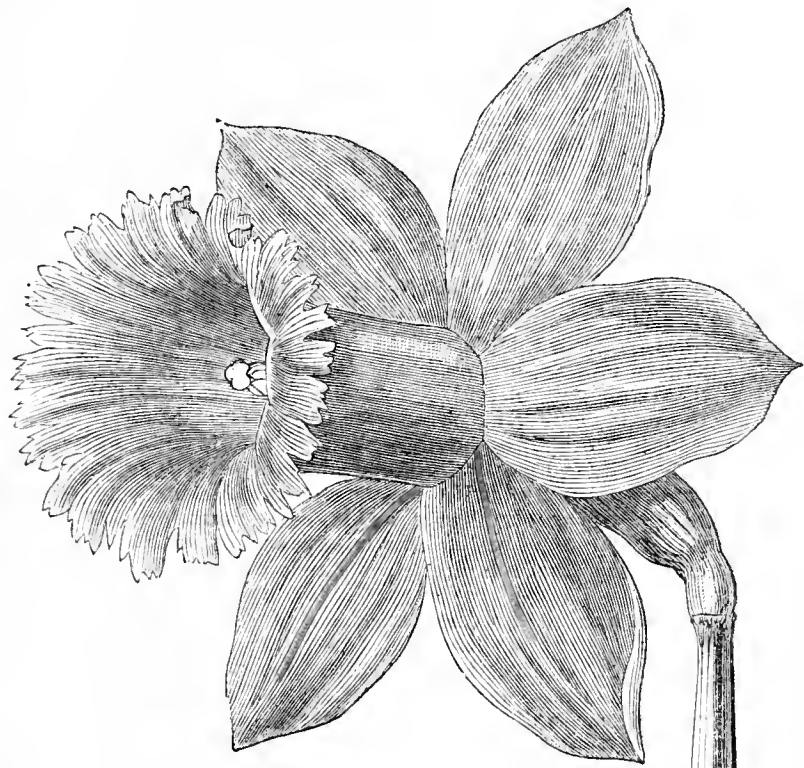


Fig. 57.—*Narcissus pallidus præcox*.

Harry J. Veitch, G. Bunyard, and Phillip Crowley. The principal exhibit before this Committee was a collection of Rhubarb from Chiswick, in which a number of varieties were represented. Under Early Red or Albert were classed Mitchell's Royal Albert, Crimson Perfection, and Scotch Mammoth, which were found to be identical with the type. Under Linnæus were arranged Lawson's Victoria, Buckley's Crimson, Salt's New Emperor, and Burr's Goliath. Other distinct sorts were Buck's Early Red, which produces a small stem but of excellent colour; Dancer's Early Red is somewhat similar but larger. Hawkes' Champagne was considered the best of all, being early, producing a fine stem, and of rich colour. A first-class certificate was awarded for this. Baldrey's Scarlet Defiance and Carter's Crimson Perfection were found to be identical, while Victoria and Stott's Monarch were considered to be distinct late and meritorious varieties.

Mr. R. Gilbert, Burghley Gardens, Stamford, was awarded a first-class certificate for his *Universal Savoy*, which has been previously referred to. Cooked specimens were tested by the Committee, and the opinion was greatly in its favour. In some stages it appears much like a Cabbage, but the outer leaves preserve the bullated appearance of the Savoy. Mr. Yull, Dereham, Norfolk, sent samples of dwarf white Broccoli with good white heads. Specimens of the Purple Sprouting Broccoli were sent from Chiswick, and a vote of thanks was accorded to Mr. T. Oldham, The Gardens, Friern Walch, North Finchley, for a collection of eighteen dishes of well-kept Apples.

FLORAL COMMITTEE.—Section A.—Thomas Moore, Esq., in the chair. Present, the Rev. G. Henslow and Messrs. John Fraser, H. Herbst, James Hudson, H. Ebbage, H. Williams, H. Ballantine, J. Dominy, James O'Brien, E. Hill, John Woodbridge, and F. R. Kinghorn. Section B.—Shirley Hibberd, Esq., in the chair. Present, W. Bealby, J. James, J. Child, G. F. Wilson, D. Lathbury, and W. B. Kellock. Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., Oldfield, Bickley, sent a fine spike of *Odontoglossum Jenningsianum* with fourteen flowers; a plant of *O. triumphans* var. *punctatum*, a distinct variety, with the petals finely dotted with rich brown. *Eriopsis rutidobulbus* with a spike of curious brownish flowers and a white-tipped lip was also shown, together with a *Cypripedium* named *syhetense*, somewhat like a small *C. insigne*. W. Lee, Esq., Downside, Leatherhead, exhibited several Orchids, amongst which were *Masdevallia Schlimi*, *Masdevallia*

Chelsoni, *Leptotes bicolor* flowering very freely, and two others, for which certificates were awarded. Mr. J. Walker, Thame, Oxon, was awarded a vote of thanks for two boxes of Roses, including some fine blooms of Thomas Mills, Senateur Vaisse, Helen Paul, Cheshunt Hybrid, Climbing Devonensis, and Maréchal Niel. Mr. C. Turner, Slough, sent three Tree Carnations; one Ruby, a distinct shade of violet purple, very full; Rufus, bright scarlet, large and of good form; Mrs. Llewelyn, bright clear pink, very full broad petals. The Rev. E. H. Kittoe, Boldmere Vicarage, New Oscott, Birmingham, sent a plant of *Agathosma rugosa*, a plant allied to the *Diosmas*, with small heads of white flowers very powerfully fragrant.

J. H. Mangles, Esq., Valewood, Haslemere, exhibited five magnificent trusses of *Rhododendron grande*, bearing over two dozen flowers, each of large bell-like white flowers. These superb specimens were greatly admired and were awarded a vote of thanks. Mr. J. Burnett, The Gardens, Deepdene, Dorking, showed a collection of *Rhododendron* flowers from plants out of doors, several handsome varieties of the *R. Nobleum* type being remarkable for their great size. Mr. Wilson, gardener to H. M. Pollett, Esq., Fernside, Bickley, sent several spikes of *Odontoglossum elegans*, and a plant of a fine variety of *Odontoglossum Ruckerianum* well coloured. A vote of thanks was accorded. Major Lendy, Sunbury House, Sunbury, showed a plant of *Cirrhopetalum picturatum* with four spikes of its curious brownish flowers, for which a cultural commendation was awarded. Mr. Harding, The Gardens, Orton Hall, Peterborough, was accorded a vote of thanks for a box of fine Maréchal Niel Roses. W. Soper, Esq., 307, Clapham Road, was also accorded a vote of thanks for a healthy plant of *Cattleya Loddigcsi*, with eleven of its distinct mauve-purple flowers.

Mr. J. Graham, Cranford, Middlesex, exhibited a box of a rich crimson Polyanthus named Sir Gerald Graham, which had been flowering in the open ground from October. Plants of the large single yellow Wallflower Cranford Beauty, which was so much admired last year. A vote of thanks was accorded. A vote of thanks was awarded to Mr. Bain, gardener to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, for a group of Begonias flowering most profusely. The principal varieties were odorata with white flowers, Nitida with pale pink flowers, and Roetzli, rich coral red. A fine pot of *Freesia refracta alba* was also sent. Mr. Frank Miles, 26, Tite Street, Chelsea, sent a flower of a Tulip from north-west Persia, found by Mr. E. O'Donovan in his journey to Merv. It was bright scarlet with black spots at the base of the petals, somewhat like a species of *Papaver*. Mr. T. P. Bethell, 24, Cable Street, Liverpool, exhibited a number of the "Unique" boxes for sending flowers by post.

First-class certificates were awarded for the following:—

Amaryllis Col. Burnaby (Veitch).—Flowers of great size and substance, 7 inches in diameter, with proportionately broad petals, brilliant, almost dazzling scarlet, two flowers in a head, and two spikes to the bulb. This is one of the most imposing of the many grand Chelsea novelties.

Amaryllis Mrs. Shirley Hibberd (Veitch).—A beautiful variety with flowers 6 to 7 inches in diameter, deep crimson, with a pale green centre and white tips. The plant had two spikes and two flowers each.

Amaryllis Sir Redvers Buller (Veitch).—A superb variety; flowers four in a head and 7½ inches across, the petals 3 inches across; rich scarlet with a broad central white stripe.

Hyacinth General Gordon (Veitch).—A fine variety. Spike very large, but rather loose. The floral portion 8 inches deep; flowers deep purplish blue, single, with narrow petals.

Hyacinth Harlequin (Veitch).—A single variety with a very compact spike; flowers mauve-purple, white in the centre, and very distinct in colour.

The four following new Hyacinths are worthy of especial note, though they were not certificated:—

General Graham.—Single, dark rich shining blue, very compact dense spike. Considered by many superior to General Gordon.

Minerva.—Double, of a peculiar salmon tint, compact spike.

Lord Derby Improved.—A variety with wonderfully large bells and spikes.

Lady of the Lake.—Single, pale primrose yellow, close spike.

Laelia calistoglossa (Mr. Ballantyne, gardener to Baron Schröder, The Dell, Egham).—A magnificent species with narrow twisted mauve sepals and petals, the lip 2½ inches across, of the richest crimson, the margin slightly undulated. The flowers are 7 to 8 inches in diameter.

Odontoglossum Oerstedti (W. Lee, Esq.).—A pretty dwarf species with small white flowers, the lip stained with yellow at the base. The pseudobulbs are about 1 inch in diameter, and the leaves 2 to 4 inches long. The plants were in small pans and had twelve to eighteen flowers each.

Cattleya Trianae var. *Leeana* (W. Lee, Esq.).—A magnificent variety, with flowers 7 inches in diameter; the petals 3 inches broad, pale mauve purple; the lip 4 inches long, intensely rich crimson. The plant shown, which is an extremely valuable one, was growing upon a block, and had four grand flowers.

Odontoglossum macrospilum (Williams).—A magnificent Orchid, somewhat of the *Alexandrae* type; the flowers 3 inches in diameter, sepals and petals white heavily blotched with chocolate, the lip being triangular in form, serrated at the margin, yellow at the base, and with heavy chocolate spots.

Rose Anne-Marie de Montravel (Bennett).—One of the Polyantha varieties, with small but neat double pure white flowers, produced in great abundance. They were shown in 6 and 7-inch pots, and were very attractive.

Auricula Hetty Dean (Dean).—A yellow self variety with neatly formed flowers, the paste well defined, and the body colour a clear shade of yellow.

Wallflower Bedfont Yellow (Dean).—Very dwarf, with dark green sturdy leaves; the flowers 1½ inch in diameter, pure yellow, in a dense compact truss.

Adiantum rhodophyllum (Veitch).—A distinct and beautiful Fern with bipinnate fronds; the pinnules 1 inch across, irregularly semicircular in form; the young fronds being of a reddish tint like *A. rubellum*. Dwarf and compact in habit.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Black Knot in Birch.—With reference to this subject, brought before the Committee at the last meeting, Mr. MacLachlan observed that Prof. Trail had come to the same state of uncertainty as to *Phytophthora* being the cause of it as himself, inasmuch as by his experiments he obtained a small gall-like structure, which would, however, develop no further, and failed to produce the characteristic features of the disease.

Experiments in Protecting Potatoes from the Disease.—A sub-Committee was nominated to superintend the experiments to be carried out at Chiswick, consisting of Sir J. D. Hooker, Messrs. Plowright, W. G. Smith, G. Murray, S. Hibberd, Dr. Masters, Mr. MacLachlan, Mr. Bower, and Rev. G. Henslow.

Apples Attacked by Fungi.—Mr. MacLachlan exhibited Apples showing cup-like depressions. They were referred to Mr. Murray for examination.

Rhododendron Wightii.—Mr. Mangles exhibited a truss of this species, and traced the history of its occurrence and descriptions as follows:—*Gardeners' Chronicle*, 1856, p. 213, "R. Wightii bloomed at Standish's, not equal to the description by Hooker in 'Himalayan Rhododendrons'; it turned white when open, of a good shape, was 3 inches across, and petals singularly transparent. Hooker figured it as yellow with red spots. In the Kew Herbarium is a sheet of R. Wightii, signed 'J. D. H. Lachen, 12,000 feet,' and labelled flowers white." Another ref. was from Combe Royal, where it also blossomed white. Herr Otto Foster, of Austria, writes:—"Years ago I had R. Wightii with flowers." The bud scales showed the same rich chestnut colour as in Hooker's figure.

Primula elatior.—Mr. Boulger showed an extremely dwarfed specimen as grown in a London atmosphere, the corolla being about half an inch across.

Proliferous Cardamine.—Mr. Houston showed a specimen having a bud growing between the petal and pistil.

Flowers for Open Ground.—Mr. G. F. Wilson exhibited several specimens—e.g., a Camellia (planted out in October from a cool house) was in full bloom. Sir J. D. Hooker remarked upon the various degrees of hardness of this plant. *Primula denticulata* with very fine trusses, &c.

Plants Exhibited.—Mr. Loder brought *Scilla italica* var. *alba*, a rare form; *Muscari lutea*, very sweet-scented; *Chionodoxa nana*, &c. Dr. Low brought two species of *Cheiranthus*, *longifolia* and *mutabilis*, which are usually cut by frost, but were not at all injured in the past winter; also a *Richardia* with leaf and undeveloped spadix. A *Cerinthe* major, which for six or seven years had borne yellow flowers, reverted to brown, the normal colour.

"Black Spot" Fungus on Orchids.—Mr. W. G. Smith exhibited leaves belonging to *Vanda* and *Cattleya*, as forwarded by a correspondent of *Garden*, covered with black disease pustules. Mr. Smith said the sporangia, the fungus described under *Protomyces concomitans*, B., were very distinct in the discoloured patches.

Black Fungus Patches on Oranges.—Mr. Smith also exhibited blackened Oranges, the sooty patches being caused by the fungus known as *Capnodium citri*.

"Bunt" Disease of Wheat.—Mr. Smith pointed out the fact that the Rev. M. J. Berkeley in 1847 described and illustrated the secondary spores of germinating Bunt as distinctly septate, like a *Fusisporium*. Since then, and especially after the publication of Tulasne's memoir in 1854, the spores have been invariably described and illustrated as non-septate. Dr. Oscar Brefeld, however, in his recent magnificent work on Smuts and Bunt illustrates a series of these spores as distinctly septate, and precisely agreeing with the original description and illustration published by Mr. Berkeley.

Corn Mildew and Barberry Blight.—Mr. Smith said in reference to this subject that the *Puccinia* of mildew of corn was perennial and hereditary. It was, however, not so easy to prove that the fungus of Barberry Blight was perennial, as the bush, as well as the fungus, was rare. Mr. Plowright was, however, good enough last spring to send a collection of Mahonia berries on to Mr. Smith, many of which were invaded by *Æcidium berberidis*, Pers. Mr. Smith planted three series of these berries, giving each series three months for germination. Not a single berry germinated or appeared above the ground. Twelve berries, each invaded by *Æcidium*, were also sent on to Mr. B. S. Williams, of Holloway, who planted them under favourable conditions as a test experiment, and not one seed came up in Mr. Williams's pots. Mr. Smith has since sent a series to Chiswick, where Mr. Barron is trying them. Mr. Smith thought the Barberry blight disease, like the mildew of corn, was probably perennial; if so, all the deductions made from experiments with plants saturated with hereditary disease should be received with very great caution.

LECTURE.—The Rev. George Henslow took the *Narcissus* as the subject of his lecture, which was illustrated by many specimens from Mr. Barr's beautiful collection.

With reference to the origin of the name, he explained how in Greek mythology the son of Cephissus and Liriope, slighting the nymph Echo, fell so desperately in love with his own shadow in the stream instead, that death alone could release him from the anguish of such unrequited love. The Naiads mourned for him, and on searching for his body discovered nothing but a beautiful flower instead, which henceforth bore his name.

Coming to more prosaic matters, the genus, though abounding in "forms," is, according to Mr. G. Baker, a limited one. That botanist groups them under three heads—viz., those with long trumpet-shaped crowns or coronas, as the *Daffodil*; those with crowns of a medium length, as in the *incomparabilis* group; and those with a mere rim, as the *Poet's Narcissus*.

Describing the structure of the flower, he pointed out the difference between the family *Amaryllidaceæ*, to which this genus belongs, and that of *Lilies*, which it resembles, the former being known by all its members having the ovary inferior, or below the perianth.

The crown he explained as being a mere outgrowth from the perianth, and would seem to correspond to the rim seen in the corollas of the *Primrose* and *Forget-me-not*. It is not at all characteristic of the majority of the genera in the family, the *Amaryllis* and *Snowdrop*, for example, being entirely without it.

Double flowers are frequent, and are of different kinds:—1, The corona may be filled with a mass of petals, this being derived from weaker bulbs. 2, The perianth and corona may be broken up and repeated many times, so as to form an irregular mass of petals, such arising from stronger bulbs. 3, The petals may be piled up in front of each other, as in a *Rose*. This occurs in the var. *Eystettensis*, first figured by Lobelius in 1581.

With reference to the physiological properties, the *Narcissus* is more or less poisonous, the *Daffodil* and the *Poet's* being especially so, and have been used in medicine as emetics. Other members of the family are poisonous, as *Brunsvigia toxicaria*, which is used by the natives of South Africa to poison fish. It was this which accidentally poisoned Dr. Pattison, though he fortunately recovered.

The *Narcissus* has been long cultivated in England. Gerard, in his "Herball," A.D. 1597, described seventeen kinds; and Parkinson, in his "Paradisus" (1629) figures many and describes ninety-two kinds.

Selecting a few for illustration, Mr. Henslow first alluded to the "Hoop Petticoat," *N. Bulbocodium*, from the W. Mediterranean regions, and which is remarkable for the shape of the crown and the declinate stamens. It is recorded that a bulb of this species having been in an herbarium for twenty years, subsequently revived, was planted and flowered. The *Daffodil*, or *N. pseudo-Narcissus*, is probably the only native species of Great Britain, though *N. poeticus*, &c., are naturalised. It is very variable, especially under cultivation. The size of the flowers quite justifies the terms *maximus*, *major*, *minor*, *minimus* applied to as many varieties. The colour may be all yellow, or the perianth may be white while the crown alone is yellow (e.g., *bicolor*), or all white (e.g., *cernuus*), such as are the Spanish forms.

Double flowers of the larger sorts are common, though that of the true wild *Daffodil* is not. The great double *Daffodil* first appeared in the garden of Vincent Sion of Flandres in 1620. Of the second group with shorter crowns the most important is the form *incomparabilis*, with its many vars. This is now considered to be a hybrid between the *Poet's Narcissus* and the *Daffodil*, although it occurs wild in France and Spain, for Dean Herbert and others have raised it from such a cross; indeed, he thought that by using the pollen of *N. poeticus* successively for two or three generations the *Daffodil* could be converted into *N. poeticus*. A new form with a pale rosy tint and with a strong scent of Violets was exhibited by Mr. Barr, about the size of the common *Daffodil*, but entirely pale yellow in tint. It is remarkable that the purple rim of the cup of *N. poeticus*, with the golden yellow of the *Daffodil*, give rise to an orange tint in the cup of *imperialis*, just as a purple and chrome yellow when mixed on a palette produce a similar orange.

Another important species is *N. odorus*, the *Campernelle*, of a pure yellow colour, with a six-lobed corona, and is very sweetly scented. This is intermediate between the *Jonquil* and *incomparabilis*. Its native home is S. France, Italy, and Dalmatia.

Of the third or short-crowned section, *N. Tazetta* is perhaps the most variable. The Dutch, even in 1800 cultivated as many as 300 forms. It has apparently the widest geographical range; for if not truly wild there, it is at least very largely cultivated in China. All other species appear to be limited between Great Britain and the Caucasus. It is the common *Polyanthus Narcissus*, as it bears many flowers on the scape.

The typical form has a white perianth and a yellow cup; but varies in colour like the *Daffodil*, and may be double as well. The true *Narcissus* of the ancient poets appears to be *N. poeticus* or *N. biflorus*, especially the former, as it is described by Virgil as "purpureus"—doubtless in allusion to the purple rim to the crown, which colour is wanting in *N. biflorus*. Its double form, resembling *Gardenia florida*, is much cultivated for decorative purposes.

Mr. Henslow also exhibited a dried specimen of the *Hyacinth* as wild in S. Europe, to show the great advance made in 300 years. It is not mentioned by Turner, 1548, though Gerard in 1597 had both single and double kinds. He called attention to two remarkable Orchids, *A. Cirrhopetalum*, in which two sepals were coherent to form a false labellum (see *Bot. Mag.*, 1849, tab. 4422), and *Eriopsis rutidobulbon*, first introduced to Kew, where it flowered in 1868, but has rarely flowered since. It was found in New Grenada "growing on the smooth stem of a Palm fully exposed to the sun." See *Bot. Mag.*, 1849, tab. 4437.

SPRING SHOW.

GROUPS.—The conservatory was most attractively furnished with groups of plants, *Hyacinths* occupying the greater portion of the space, and presenting an array of rich colours that was most imposing. Throughout these were remarkable for their fine quality, and very rarely have so many been shown so equal in merit as on this occasion. *Polyanthuses*, *Daffodils*, and the miscellaneous plants shown for certificates before the Committee rendered the meeting one of unusual beauty.

Mr. B. S. Williams, Upper Holloway, staged the largest group of *Hyacinths* in the Show, which included a very fine selection of varieties, most being represented by plants with substantial evenly developed spikes. Light colours such as cream, pink, yellow, pale blue, and white were largely shown in this collection, but with sufficient dark blues and reds to render the display attractive. Lord Derby was in strong force, and mostly with spikes of considerable size. Grand Blue, King of the Blues, and Madame Van der Hoop were similarly noteworthy.

The following varieties were among the most striking and noteworthy in this collection:—**Single Reds.**—*Solfaterre*, rich orange crimson, with a large spike; *Roi des Belges*, crimson, a magnificent colour, but small truss; *Von Schiller*, well known and very effective; *Lady Palmerston*, splendid truss with large pink bells; and *Vuurbaak*, sparkling crimson with large spike. **Single Blues.**—*Grand Maitre*, light blue with enormous spike and fine bells; *Marie*, fine dark blue; and *General Havelock*, rich purple with a good truss. **Single Whites.**—*Grandeur & Merveille*, bluish, splendid spike; *La Grandesse*, charming pure white with very large bells; *Mont Blanc*. **Single Yellows.**—*Ida*, charming canary yellow with a good spike; *Obelisk*, rich yellow, and *Bird of Paradise*. Amongst the double varieties *Koh-i-noor*, a semi-double pink sort with splendid spikes, was conspicuous, as also were *Garrick* and *Laurens Koster*, double blues.

A group of profusely flowered plants of *Azalea mollis*, yellow, salmon, and rose, contributed to the attraction of the Holloway exhibit, together with some richly coloured *Amaryllis*. A dozen large pots of *Lilies* of the Valley with two or three dozen spikes of large bells each, about the same number of *Narcissuses* and sixty pots of *Tulips*, including such well-known and beautiful varieties as the following:—*Vermillion Brilliant*, scarlet; *Ophir d'Or*, yellow; *Adeline*, rose; *Joost Van Vondel*, crimson; *Fabiola* rose, white-flaked; *White Pottebakker*, white; *Rose Luisante*, rose; *Van der Neer*, purple; *Proserpine*, rose; and *Keizer Kroon*, crimson and white, formed another important portion of this group, while sixty pots of dwarf *Cyclamens* and some large seedling *Imantophyllums* completed a display of great beauty and extent, by far the most imposing in the conservatory, and well deserved the gold medal which was awarded to it.

Messrs. J. Veitch & Sons, Chelsea, contributed a very large and handsome group of well-grown *Hyacinths*, the spikes being distinguished by their great size, compactness, and large well-developed bells. The colours also

were extremely pure bright and fresh, and the different shades being tastefully arranged and in due proportion. Some of the spikes had the flowering portion 8 or 9 inches deep, and closely packed with blooms, the foliage being stout and strong. Some examples of Von Schiller, Nimrod, Garibaldi, Electra, King of the Blues, Czar Peter, General Havelock, Grand Maitre, La Grandesse, and Koh-i-Noor were particularly remarkable for their splendid condition; while scarcely less noteworthy were Princess Helena, Cavaignac, and Etna, single reds; Souvenir de J. H. Veen, Enchantress, Grand Maitre, and De Candolle, single blues; and L'Innocence, Miss Nightingale, and Grandeur à Merveille, single whites. A silver-gilt medal was awarded for this fine group.

Messrs. W. Cutbush & Son, Highgate, were awarded a silver-gilt Banksian medal for a group of 100 Hyacinths, representing a great number of the best varieties, the spikes mostly massive, and the colours bright and clear. The pots were surfaced with moss, and the whole group had a very pleasing appearance. Amongst the collection were included fine examples of the following:—Single reds: Von Schiller, Prince Albert Victor, and Lord Macaulay. Single blues: King of the Blues, Lord Derby, The Sultan, and Czar Peter; and single whites: Lady Derby, Mont Blanc, Grandeur à Merveille, and La Grandesse. About twenty pots of Tulips and Narcissuses were also attractive in this group. Messrs. Collins Bros. & Gabriel, 39, Waterloo Road, staged a bright collection of Daffodils and Anemones, the former including incomparabilis Stella, incomparabilis plenus, jonquillus, and poeticus; while the Anemones were chiefly fulgens and multipetala, both very bright in colour.

Mr. T. S. Ware, Tottenham, had a most interesting group of hardy flowers, principally Daffodils, of which a number of choice and distinct varieties were represented. Very notable were incomparabilis albus expansus, with creamy petals and a gold crown; bicolor Horsfieldi, white petals and a long bright yellow crown; princeps, creamy petals and a clear yellow crown over 2 inches long; bicolor Empress, white petals and fine gold crown; Backhousei, with a broad rich yellow crown; Leeds argenteus, white petals and lemon crown. Some of the Narcissuses were grown in pots, and, being furnished with strong foliage, they were very attractive. Several pans of Primula rosea were exceedingly bright, Grape Hyacinths, Chionodoxas, Scillas, Lachenalias—L. Nelsoni and L. tigrina var. Warei, with neat flowers, bright red at the base, yellow, greenish at the upper part and margined with red. The pure white Zephyranthes Treatiae was also very notable in the collection. A bronze medal was awarded for this collection.

Mr. R. Dean, Ealing, showed a collection of Polyanthus, Primroses, Wallflowers, and miscellaneous hardy plants. Very handsome was a large pan of Aubrietia violacea with dark rich purple flowers of the Hendersoni type. Polyanthus Conjuror, rich maroon with a gold centre; Buttercup, bright clear yellow; General Gordon, warm crimson, gold centre; Bridal Wreath, pure white, orange centre; and Primrose White Queen were all good and beautiful. Myosotis dissitiflora Perfection, a variety with large flowers of good colour; and Dornicum austriacum, which has pure yellow flowers 2 inches in diameter, with very narrow florets but closely set. A bronze Banksian medal was awarded to Mr. A. Waterer, Knap Hill, Woking, for a beautiful collection of Polyanthus similar to that staged at the previous meeting, together with the large specimens of Andromeda japonica then described.

A silver-gilt Banksian medal was awarded to Messrs. Barr & Son, Covent Garden, for an extensive collection of Daffodils and Anemones, Muscaris, and miscellaneous hardy plants. All the best varieties of Narcissus in cultivation were represented—the pseudo-narcissus type, the incomparabilis forms, Leedsi, Barri, together with Tazetta varieties, in all a most complete and interesting group.

ROYAL BOTANIC SOCIETY.

MARCH 26TH.

THE first spring Show of the year was held on Wednesday last in the corridor and conservatory of the Royal Botanic Society's Gardens, Regent's Park, and though some of the classes were less well filled than usual the total display was quite equal to the majority of previous early shows. The widened corridor permitted the erection of a double stage down the centre, which, in addition to the side stage and several tables in the conservatory, was fully occupied with exhibits. The weather was unfavourable, but a number of visitors assembled during the afternoon.

Cyclamens.—These were represented by a number of well-grown plants. For twelve plants (amateurs) Mr. Wiggins, gardener to W. Clay, Esq., Kingston, was first with specimens 1 foot to 18 inches in diameter, and bearing two or three dozen flowers each in fine condition. Mr. J. Hill, gardener to H. Little, Esq., Hillingdon Place, was second with much smaller plants and fewer flowers. In the open class, Mr. H. B. Smith, Ealing Dean, was adjudged the first position for very compact specimens bearing flowers of great size and substance. Mr. Hill and Mr. Wiggins followed in the order named with smaller looser examples.

Deutzias.—In the open class for six plants four good collections were staged, Mr. J. Douglas, gardener to F. Whitbourn, Esq., Great Gearies, Ilford, taking the first position with his handsome cylindrical specimen 5 feet high, and loaded with flowers. Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, was second with dwarfed, globular, and less formal specimens, Mr. Hill being third with well-grown untrained plants.

Hyacinths.—A beautiful collection of twelve plants gained Mr. J. Douglas the first prize in the amateurs' class, the spikes being extremely large and the bells well developed. The varieties were Von Schiller, Grandeur à Merveille, Cavaignac, La Grandesse, Koh-i-Noor, Princess Mary of Cambridge, King of the Blues, Lord Derby, and Solfaterre. Mr. H. Eason followed, Mont Blanc and Lord Derby being the two finest in his collection.

In the nurserymen's class Messrs. H. Williams & Son won the first place with handsome plants, the spikes being massive and the colours clear. Messrs. Cutbush & Son and Gregory & Evans were second and third with smaller plants.

Narcissi.—Mr. J. Douglas and Messrs. H. Williams & Son, Fortis Green, Finchley, were first and second respectively with twelve pots of Narcissi, both being good collections; the varieties Bazelman major, Bathurst, Grand Monarque, Newton, and Apollo were the favourites.

Tulips.—Only two collections of Tulips were shown in the amateurs' class for twelve, Mr. Eason securing the premier award with fine plants, the flowers large and richly coloured. Mr. J. Douglas was a very close second, his collection being less even, but dwarfier than the other. In the nurserymen's class Messrs. H. Williams & Son, Gregory & Evans, Sidcup, and Cutbush & Son, were the prizetakers, the first showing some fine flowers.

Amaryllises.—Mr. J. Douglas won chief honours for six Amaryllises, showing the varieties Sultan, Endymion, Empress of India, very showy with two spikes, one having six flowers; Sir J. Cathcart, and seedlings. Mr. Hill and Mr. Butler, gardener to H. A. Gibbs, Esq., St. Dunstan's Lodge, Regent's Park, followed with small flowers of little merit. Azaleas were poorly shown, by far the best being the neat globular specimens from Mr. H. James, Castle Nursery, Lower Norwood, for which the first prize was awarded in the nurserymen's class. Of these the varieties were Purpurea, Apollon, Alice, Elegantissima, Coloris nova, and Madame Charles von Eckhaute. Messrs. Paul & Son, Cheshunt, were the only exhibitors of six Roses in pots, and secured the first prize with handsome examples of Claude Bernard, Catherine Souper, Alba Rosea, Mrs. Laxton, La France, and Souvenir d'Elise. The only collections of hardy plants and Primulas were shown by Mr. J. Douglas, for both of which he gained the first prize. The former included Narcissus bicolor Horsfieldi, Jonquils, Fritillarias, and Pulmonaria virginica. The Primulas included villosa hybrida, villosa nivea, and varieties of amœna.

Miscellaneous.—The collection of plants and groups from nurserymen formed an important feature in the Show; but as they were mostly the same as those at Kensington on the previous day they need not be referred to in detail. Medals were granted to all the following:—Messrs. J. Veitch & Sons, Chelsea, staged a group of magnificent Hyacinths, the spikes being of surprising substance and size. They also showed a large group of novelties; choice Orchids, Amaryllises, and Ferns. Mr. B. S. Williams, Upper Holloway, exhibited a large group of Hyacinths, Tulips, Lilies of the Valley, Narcissuses, and Cyclamens, which formed a brilliant display. The same exhibitor had a group of Azalea mollis varieties, Amaryllises, and Imantophyllums. Messrs. Paul & Son, Cheshunt, contributed an attractive group of Roses in pots, well furnished with fresh vigorous foliage and abundant substantial flowers. The Polyanthus varieties, Mignonette and Parqueritte, being very beautiful. Messrs. Wm. Cutbush & Son, Highgate, staged a handsome group of Hyacinths, Tulips, and Narcissuses, the spikes of the first named being of great size and substance. Mr. F. Hill showed a group of richly coloured Cyclamens, the flowers mostly small, but very numerous.

Messrs. Barr & Son, Covent Garden, exhibited a most extensive and beautiful collection of Daffodils, including some scores of distinct varieties of the different sections, while in striking contrast to them were some masses of Anemone fulgens. Mr. T. S. Ware, Tottenham, contributed a choice collection of Daffodils and miscellaneous hardy flowers. Messrs. Collins & Gabriel, 39, Waterloo Road, had a group of Anemones, Narcissuses, and various hardy flowers. Mr. Anthony Waterer, Knap Hill, had a group of Polyanthus and Andromeda japonica. Messrs. Carter & Co., High Holborn, showed a large number of flowers of their Empress Poppy Anemones, representing brilliant shades of red, crimson, blue, purple, and white, Anemone fulgens being well represented. A pretty collection of Auriculas was staged by Mr. J. Douglas, comprising strong plants with large trusses of clean even flowers.

Messrs. Gregory & Evans exhibited a very fine collection of well-grown Hyacinths, together with about twelve pots each of Erica Cavendishii and Erica ventricosa coccinea minor. These were neat dwarf plants well covered with bloom. Mr. James, Woodside, Farnham Royal, staged a magnificent group of Cinerarias, the plants being large and healthy and covered with flowers of immense size. Mr. James' Cinerarias are well known to be almost unequalled, and these were indeed superb. Mr. Wiggins, gardener to W. Clay, Esq., Kingston, also showed a collection of Cinerarias and Cyclamens, both being very large and of good colour.

Mr. A. B. Smith exhibited a very large and very fine collection of Cyclamens, the flowers being of great size and the colours remarkably pure and bright. Mr. H. Eason, gardener to B. Noakes, Esq., Highgate, staged a small miscellaneous collection of plants, consisting of about a dozen pots each of Hyacinths, Tulips, and Lachenalia luteola. This small group looked bright and neat. Mr. John Odell, Willow Vale Nursery, Shepherd's Bush, showed a collection of scarlet Primulas and white Cyclamens; the former though small were of good colour, while the latter were both large and pure.



KITCHEN GARDEN.

MARCH is a busy month in the kitchen garden, as the "dust" which is expected to predominate then is in favour of sowing and planting; but the present March will not be noted for this, as we have had much rain. On this account many seeds which would have been under the soil are still in the bags, and nothing will be lost by this, as it is very much better to sow late than to put them into a cold, wet, unfavourable soil. Good weather, however, may soon be expected, and the most must be

made of it. When work cannot be done on the soil, forward it as much as possible elsewhere, and when good days do occur get all hands to the vegetable quarters. This is the only way progress can be made in changeable weather.

Herbs.—These should now have attention. They are important in all kitchens, and gardeners should be well stocked with them. Mint delights in a rich soil; but when the roots have been planted they need not be disturbed again for many years; but an annual top-dressing of short manure should be put all over the surface every spring. This should be done before growth is much advanced. Sage and Thyme are easily propagated from seed, which should be sown now in good soil. Sage may also be increased from cuttings, and large plants of Thyme may be divided and planted anew. As young healthy well-furnished plants of both may be secured in these ways, old specimens should never be allowed to remain. Sweet Basil must be raised from seed sown under glass; then plant in a frame and grow in this way. Bush Basil is hardier and may be raised in the open, and so may Borage, Burnet, Dill, Horehound, Fennel, Marjoram, Purslane, Savory, Skirret, and Sorrel, all of which should find a place in every herb border.

Potatoes.—Early ones in frames must have plenty of air admitted to them on all favourable occasions. Dig up those matured and refill frames with young Celery and other plants. Protect any coming through the soil in sheltered corners should frost occur. Varieties of all descriptions may now be planted. We are now putting in Schoolmaster, and other late varieties will follow as soon as possible. Admit plenty of air to seed tubers, as this will harden them and make the shoots, which are now pushing freely from all of them, robust and healthy.

Peas.—Spring-sown Peas now require to be earthed up and staked. It is an advantage to keep them always upright. When neglected and allowed to fall over through not being staked in time they never do so well afterwards. Varieties such as Telegraph, Telephone, Giant Marrow, Stratagem, Pride of the Market, and Webb's Electric Light should be sown now to fruit in July. Open the drills wide, put plenty of manure in, sow good seed thinly, and the growths will certainly be robust and plentiful. Dwarf varieties in frames or under glass should have abundance of air, as too much heat and a close atmosphere are not conducive to fertility.

Turnips.—Some of these are sown in February and many in March; but those sown previous to this time may seldom prove profitable, as they are so liable to flower before bulbing. Now they are safe to form useful produce, and the Early Munich or Snowball should be sown. Give them good soil, a favourable situation. Make the drills 2 inches deep, 15 inches apart. Sow thin and tread the soil over the seed as firmly as possible. The latter operation is a capital one to make the bulbs come a good shape and clean.

Globe Artichokes.—The material which has been round the collars of these plants as protectors during the winter should now be forked into the soil about the roots. To secure large succulent heads—and no others are valuable—they must have rich soil, and if the mulching material has not much of this property left in it add more good manure.

French Beans.—Plants in pots are now bearing profusely. Give them plenty of liquid manure when the crop is forming. Throw away the old plants immediately they cease fruiting and supply young ones. No more need be sown in pots in warm houses; but seed may be planted in ordinary frames amongst good soil, and if glass lights are placed over them they will soon grow and bear much fruit before any which can be grown in the open. Osborn's is one of the best sorts to sow in a frame, as it does not grow tall and it is very prolific. Seed sown in a frame now will bear fruit by the end of May.

Tomatoes.—Plants of these, whether in beds or fruiting pots, must be restricted in growth. When growing in close warm houses at this time they are liable to make much superfluous wood, and would soon overrun a large space with unfruitful shoots, but these should be constantly cut away, and confine the plant to one or two bearing stems. These will bear a cluster of fruits every few inches and be more profitable than a large plant. Supply those bearing heavily with liquid manure twice weekly. Plants in 3-inch pots may be potted into 6-inch ones. Prepare a good batch of plants for planting in the open in May. These are better kept dwarf and not in too much heat.

Celery.—The main crop of this should be put in. If a slight hotbed can be made up to sow on have it by all means; otherwise sow seed in houses or pots, and bring the plants forward in pit or vinery. A gentle heat will do. Keep the young plants near the glass. Always water well. Early plants should now be standing 3 inches apart in small pots, boxes, or frames. Admit plenty of air, and avoid checking them in any way.

Young plants in frames, such as Cauliflower, Lettuce, &c., must have more air, as they should be hardy enough to bear planting in the open in a few weeks hence.

Leeks.—Sow a good patch of Henry's Prize, St. David, or Musselburgh in a rich soil, from which they can be conveniently transplanted by-and-by.

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Earliest House.*—Where such varieties as Alexander and Early Beatrice are grown these have stoned and are swelling their fruit, to encourage which afford copious supplies of tepid liquid manure to the roots, and syringe twice a day, being careful to have the fruit dry before night, as moisture allowed to remain upon it some time will spoil the appearance of the fruit. Do not, however, raise the temperature until the other trees in the house have completed the stoning, keeping it as equable as possible until the trees have passed this critical process, which in the case of such varieties as Hale's Early, A Bec, and Royal

George, and of Nectarines Lord Napier and Advance, will not take long after this to be affected. In the meantime keep the temperature at 60° or a few degrees less on cold nights, 65° by day and 5° to 10° higher from sun heat. Give air early, but only a little, and gradually increase it as the day advances until the maximum is reached. Be careful in admitting front air, particularly in windy weather, as cold cutting draughts are likely to prove disastrous, if not fatal. Tie in young growths as they advance, leaving plenty of space in the ties, as tight tying frequently causes gum. Stop gross shoots when they have made about 15 inches of growth, or remove them altogether if likely to interfere with an equal diffusion of sap and growth throughout the tree. Keep laterals somewhat closely pinched, and avoid overcrowding as the greatest of evils in fruit culture.

Succession Houses.—Disbudding must be proceeded with, thinning the fruit by degrees, leaving those which are most favourably placed for swelling and colouring. Tie down the leading shoots and those at the base of the current bearing wood for supplanting it in next season's fruiting. In the house started early in January the fruits are swelling fast, and as they advance it will be advisable to remove most of those that will not be required. The thinning both of the fruit and of superfluous growths must be done gradually. A night temperature of 55° to 60° and 10° to 15° rise from sun heat will be suitable, losing no opportunity of admitting air, especially in the early part of the day, and close early with plenty of moisture in the house. Syringe twice a day, and see that there is not any deficiency of moisture in the inside borders. In the house started in February proceed carefully, judiciously, and progressively with disbudding and thinning the fruit, removing the growths on the strongest first, and the smallest fruit, especially that on the under side or back of the trellis.

Late Houses.—The late trees have been in flower some time; indeed, some of the trees have set their fruit. Air will need to be admitted very freely, as from the forward condition of the trees the fruit will otherwise ripen along with the third or fourth succession house, or the one that is usually started in March. Peaches submit to a low night temperature, providing the atmosphere is dry and frost is excluded, but a temperature of 50° by day should, if possible, be secured to them, as the organs of fructification are seriously impeded in their offices when subjected to prolonged cold. Keep a sharp look-out for aphids in all structures, and destroy them by fumigation, but be careful in its application so as not to injure the tender foliage. Where there is a great set of fruit, which is a common occurrence this season, remove most of that on the under side of the branches.

Figs.—*Early Trees in Pots.*—In dull sunless weather a certain amount of caution is necessary in the application of stimulants, for although the Fig be a gross feeder and roots rapidly, lessened supplies will be needed than when the weather is bright. Syringing in such weather will also need moderating, particularly in the afternoon, especially in houses that are close and low, for under no circumstances is it prudent to allow moisture to remain on the trees after daylight. In dull weather all watering should be performed before or directly after breakfast, by which time the heat of the day should be attained so far as that from fire heat is concerned, and on no account must the trees be allowed to suffer from insufficient supplies of water. Syringing in such weather must be performed between 1 and 2 p.m., doing it thoroughly, so that red spider may not increase. Attend well to the thinning and stopping of side shoots, as these play an important part in the second crop, but this more particularly applies to trees planted out than to those in pots, which last, however, must not be kept much crowded in the head, or the fruit will be poor and sparse.

Early Forced Planted out Trees.—Train all leading or terminal shoots in their full length where space remains to be filled. Do not, however, permit crowding, but keep the side growths duly thinned and stopped; as if formed into spurs they are an important factor in the second crop. Endeavour to obtain short-jointed wood by careful ventilation on all favourable occasions, and avoid a high night temperature, especially in cold weather. In ordinary weather the night temperature may be 60°, a few degrees less in cold weather or a few degrees higher in mild weather will not matter. Allow a rise of 10° from fire heat in the daytime, and keep at 75° or 80° through the day from sun heat. Give air at 75° or a very little on sunny mornings at 70°, increasing it with the solar heat, and close at 80°. Water the borders copiously, keeping the mulching moist so as to encourage surface roots.

Succession Houses.—Trees in inside borders should have good mulchings of short or half-decomposed manure, so as to encourage surface roots, giving a good watering with tepid water afterwards, and keep the mulching constantly moist, alike to keep the roots at the surface and to keep down red spider. Syringe twice a day on fine days, but early in the afternoon only on dull days. Stop side shoots at the fifth or sixth leaf, remove superfluous growths so as to avoid overcrowding, train and tie as growth proceeds, following the extension system if space permit and fine fruit is a primary consideration. Young trees intended for pots should be stopped at 14 to 15 inches from the base, and all the buds taken out from the axils of the leaves except two or three of the uppermost.

PLANT HOUSES.

Dahlias, Salvias, and Cannas.—If roots of these are placed in heat and covered with soil they will break freely, and may either be divided into several pieces with a shoot and small portion of roots attached, or firm cuttings of the two former may be struck in heat and will form the best of plants by the time they are required. The former are easily raised from seed sown in heat, and this is the cheapest method of securing a good variety of single Dahlias. Sow in pans of light soil and place in a hotbed.

Phloxes.—The early-flowering forms, such as Miss Robinson, Princess of Wales, Mrs. Downie, and others, are really beautiful when well grown

in pots. Young plants now in cold frames and well established in 3-inch pots should be transferred into 6-inch pots, using a compost of good loam, a seventh of decayed manure, and a little sand. Keep the frame close for about a fortnight after potting until they are rooting freely, when air may be admitted liberally. No attempt should be made to force them, or the growth will be weak and the trusses of flowers poor, but if grown under cool conditions and liberally treated they will be strong and produce very large trusses. In the conservatory or greenhouse when in flower they look noble, and they will come into flower some weeks before those in the beds and borders outside.

Tree Carnations.—Where choice sweet flowers are appreciated during the winter these should be grown, and in order to achieve the greatest success the plants must be propagated annually and grown on specially for the purpose. Dwarf sturdy cuttings will now be plentiful, and if taken off with a sharp knife just where they have issued from the old stem, they are sure under careful treatment to strike root with certainty. If these shoots are long, take off the top about 3 inches in length, which will do equally well. They should be inserted in pots, pans, or boxes, and after a good watering place bellglasses or handlights over them. After insertion they should be placed in a temperature of about 60°, where they will have slight bottom heat, and if well shaded from bright sun the majority will root. When in this condition air must be admitted gradually at first, until the covering they have received while rooting may be entirely dispensed with. As soon as they are rooted they should be gradually brought into a temperature, say 10° lower, by the time they are ready for placing in 3-inch pots, which should be done as soon as they are sufficiently rooted. Employ a compost of good loam, leaf mould, a little manure, and a liberal dash of coarse sand.

Carnation Souvenir de la Malmaison.—Plants that were raised by layering last autumn and have been in 3-inch pots during the winter in cold frames should now be placed in 6-inch pots. After potting return them to the frame, which should be kept close for about a fortnight, until they are rooting freely into the new compost. Afterwards ventilate liberally to maintain a dwarf sturdy growth. After the 6-inch pots are full of roots place them in others 2 inches larger and give the strongest plants greenhouse treatment, and they will be in good condition for the conservatory by the middle of June. By judicious treatment in pushing forward these plants or retarding them, a supply of their large flowers may be maintained until they can be gathered outside. Those for next winter and spring flowering will need the same treatment until the early part of June, when they may be placed in 10-inch pots and stood outside. For winter and spring flowering select those that are dwarf and most likely to produce shoots close from the base, as upon these the winter and spring flowers will be borne. The compost advised above may be used, and they should be carefully and judiciously watered until their pots are full of roots.

Border Carnations.—These are very useful for conservatory decoration, and a few of the strongest plants in small pots that have been wintered in frames should be placed into 5-inch and 6-inch pots. The beautiful white W. P. Milner, and the old crimson Clove are invaluable for this purpose, and will do well under cool frame treatment, coming into flower long before those in the borders outside. Not only are the flowers useful when cut, but at the season of the year when they bloom they are invaluable for association with other flowering plants.

Pinks.—Not to mention the use and beauty of these early in the season for forcing, they are unsurpassed for beauty when brought forward gradually under cool frame treatment, or in an airy greenhouse close to the glass. In 5-inch and 6-inch pots the old common White; Ascot, dark; and Mrs. Sinkins are, when well grown, scarcely equalled by any other dwarf flowering plants grown for decoration. The last is remarkably dwarf and floriferous, not being more than 7 or 9 inches in height when the flowers are expanded, which are as large as a Carnation and as sweet as a Clove. No garden should be without this variety, and where sweet white flowers are in demand in spring it should be grown in large numbers and forced in quantity. It is not quite so early-flowering as the old common garden variety.

THE BEE-KEEPER.

ABOUT LIGURIAN BEES.

As facts are far better than theories, and as your Journal is not prejudiced solely in favour of bar-frame hives and Ligurian bees, I write to give my testimony to support "W. B. C.," to express my sincere satisfaction at the point being so plainly stated, and to add my experiences.

The bad years about 1878 induced me to try the much-vaunted Ligurians, and, purchasing three queens from the best dealer, I had the satisfaction of introducing them, of watching the young bees appear, of handling them easily, and of noticing their apparent activity. This activity I soon discovered to be restlessness, and to be the cause of the extra feeding required for them compared with blacks. My experiences, however, were short owing to foul brood appearing in two out of the three hives. Immediately destroying these, and guarding all other hives with syrup and salicylic acid, stopped further loss from

that dreadful disease, though I lost my remaining Ligurian stock in the winter. It appeared remarkable to me then that foul brood commenced in Ligurian hives, attacked two of them, never affected my remaining blacks, and never appeared in my apiary before I introduced Ligurians.

Thus ended my first venture; but the repeated puffing of Ligurians by various bee authorities, and their vaunted praise in Mr. Cowan's excellent book, induced me to again try them. My experience thoroughly bears out that of others. My surplus from Ligurians is much smaller than from my ordinary English black bee, and my feeding to them is much more profuse. I ask your readers who are keepers of blacks and Ligurians, Which bees take honey down from supers first? and I confidently say that they will reply and bear out my experience, that the Ligurians are the first in autumn in spite of their nominal superiority in respect of second crop red Clover to take down their stores.

The introduction of Syrians, Cyprians, &c., negatively shows a want of satisfaction with the Ligurians, and I wish that our excellent British paper as England's authority on bees would approach this subject with less bias, and at the same time admit more fully the certain good points of skeps and Stewartons. To assist bee-keeping as a general pursuit, and especially for the cottagers, it is an error to be too closely attached to bar-frame hives and Ligurian bees. I have long wished for this exposure of Ligurians, and especially when I have been judging at local shows and seen the novice prizing his Ligurians, and found him deaf to any idea of mine that the change would not be worth the cost. Worth the cost! I would give more for a black queen than for a Ligurian queen: I would have one in my apiary, I would not have the other. —THE WELSH BEE-KEEPER.

WHILE I can fully endorse most of what "W. B. C." has to say against these bees, I must demur against his classing all foreign bees with them, by doing which he falls into the same error he commences in charging the late Mr. Pettigrew with, for condemning these bees before he had tried them, for, according to his own showing, he has tried no foreign bees except the Ligurian. I have also tried these bees, and have even a worse report against them than "W. B. C.;" and if anyone left me a legacy of fifty stocks the first operation I should perform would be to kill all the queens right off. I would not even sell them, because I should feel to be taking good money for what I consider a worthless thing.

I have also tried another foreign bee—the Syrian, which seems to realise all my wishes, and I have nothing but praise for it: but it has certain peculiarities one must understand, its general characteristics being the very opposite to blacks. They must on no account be smoked, they never rob, will never gorge themselves, will breed twice the number of bees, and always be the first to work in a morning. All breeders and hybridisers know that by uniting two extremes the fruit is mostly a pleasing one, and a Syrian queen mated with a black drone is no exception. I can cite a case where £20 profit has been made in one season in this country from one stock; another where the increase was £7, and each gathered sufficient to winter on, while twenty black stocks failed to swarm and had to be fed for winter. Imported queens of this race cost 22s. each, and, having had a dozen of them, I would cheerfully pay as many pounds if I could not get them for less.—HALLAMSHIRE.

AT WHAT AGE DO BEES GATHER HONEY?

ACCORDING to the experiments of Mr. G. M. Doolittle a young bee does not gather honey until it is sixteen days old. I had come to the conclusion, many years ago, that in about thirty days from the laying of the egg a young bee would be gathering honey, if there was a good yield.

As I received some very fine yellow Italian queens from a breeder in Maryland a few days after reading Mr. Doolittle's article, I thought I would make some similar experiments, to see what the results would be with me. Consequently I introduced a fine yellow queen into a colony of native bees. In about forty-eight hours afterwards the queen began to lay vigorously, and in twenty-one days thereafter the little "yellow boys" were hatching out of the cells in great numbers. In five days more some of these young yellow bees brought little pellets of pollen; and when seven days old, I found by crushing them as they dropped upon the alighting board, that quite a proportion of them had their sacs filled with honey. When nine days old they were gathering honey as freely as any in the hive, and came as well laden as the older bees.

There was no possibility of a mistake in the matter, for before the hatching of brood from the new Italian queen not a yellow bee could be found in the hive. In fact, most of my bees are of the common kind, and the colony experimented with was especially free from any yellow-banded or hybrid bees.

This experiment was made during an abundant honey yield from bass wood. In such a case undoubtedly bees would work much younger than when the honey flow was less. In our spring management this question becomes of some importance, as we would like to know about when

the young bees, which we have taken so much pains to increase by spreading brood, &c., will be ready to go to work for us.—N. M. CARPENTER (in *American Bee Journal*).

BEES, HIVES, HONEY, &c., AT THE INTERNATIONAL HEALTH EXHIBITION.

THE Executive Council have resolved to apportion a limited space for an exhibition of honey and the various articles used in its production. The entire arrangement and management of this department has been placed in the hands of the British Bee-keepers' Association, the Committee of which are very anxious to arrange for a full and comprehensive display of the honey products of the United Kingdom.

The Committee invite exhibits under the following heads:—1, Pure honey. 2, Hives of bees at work. 3, Specimens of the most approved hives and appliances used in modern bee-keeping. 4, Objects illustrative of the natural history of the honey bee and its kindred varieties, also of bee flora. 5, The means of detecting adulterated or spurious honey, with analysis of impure or adulterated honey now sold in the markets. 6, The beverages in which honey forms an important constituent, with the recipes for making the same. Every information may be obtained upon application to the Secretary of the British Bee-keepers' Association, Mr. J. Huckle, King's Langley, Herts, R.S.O.

TRADE CATALOGUES RECEIVED.

E. Webb & Sons, Wordsley, Stourbridge.—*Catalogue of Special Manures*
Richard Smith & Co., Worcester.—*Catalogue of Farm Seeds*.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (A. B. C.).—"Select Ferns and Lycopods," and "Choice Stove and Greenhouse Plants," both by Mr. B. S. Williams, and published at the Victoria and Paradise Nurseries, Upper Holloway, are useful and practical works. (F. L. S.).—The work on stove plants named in the preceding reply will suit your purpose, and Dr. M. C. Cooke's "Manual of Structural Botany," published by Bogue, St. Martin's Place, Trafalgar Square, is a cheap elementary book.

Violets (J. O.).—We thank you for the beautiful bunches of Violets, and in answer to your inquiry inform you that the flowers are of good average quality both in size and colour. Although some grown in the south are larger still more are smaller, and you have good reason to be satisfied with your productions. We presume you do not grow Marie Louise or odorata pendula of New York. They are very superior forms of the Neapolitan, and worth your attention.

Earth Closet Manure (R. H. R.).—You are right in your reference to the bushel. It is 32 quarts. No one can answer your question as it is put, because it is impossible that the strength of your tank manure can be made clear. We should not like to risk even half a peck to a square yard at first, and then should proceed experimentally. Try it on Cabbages in different quantities, and note the results. This will be the best and safest course you can adopt. The ashes are of little or no value, sifted garden soil being far superior as an absorbent.

Liquid Manure for Fruit Trees (N., York).—As your Apple trees are strong, young, and healthy they would probably not be benefited by liquid manure, which could more profitably be given to older trees that are more or less enfeebled or to vegetable crops. It may be given at the present time and at intervals during the season to whatever trees or crops may need manurial assistance.

Vines in Pots (R. H. R.).—We are glad to hear of your favourable prospects. If you carry out the system of potting in the spring as detailed by Mr. Bardney in the same careful manner as he practises it, and you are as successful as he is in fruiting Vines in pots, you will have good reason to be satisfied. We have seen Grapes on Vines in pots grown by Mr. Bardney much superior to many crops we have inspected on Vines established in borders. We shall be glad to have your experience in due time.

Insects on Roses and Pelargoniums (E. W., Brighton).—Various insecticides are equally good for destroying aphides on these plants. Nico-

tine soap, Gishurst, or fir tree oil, each dissolved at the rate of 2 ozs. to a gallon of water, will extirpate the insects without injuring the plants. Syringing the plants and then dusting with tobacco powder will have the same effect. Fumigation is also safe and effective if done before the plants are much infested; in fact, it is true economy to either fumigate or syringe the plants occasionally to prevent the appearance of insects, this being the practice of the most successful cultivators.

Disbudding Vines (J. Watson).—As you say there are a "dozen buds breaking from a spur—quite a cluster," you may safely remove all but two or three at once, removing the strongest and best placed. These you may allow to extend until you are able to determine which will produce the best bunches, and when these laterals are safe you may take off the others, as only one will be required on each spur, the spurs being at the least a foot apart. As a rule far too many laterals are left on Vines by those who fail to grow good Grapes, and the subject of disbudding demands great attention at this season of the year. We can no more tolerate superfluous growths on Vines than weeds in a flower pot, for both are robbers, hence injurious. Disbud your Vines at once.

Planting Currant Trees (D. E.).—It is late to transplant them now, especially as the season is so early and the growth advanced. We, however, had occasion to remove some young trees last week, when several of the leaves were expanded. We were careful to keep the roots quite moist in transit, and by planting carefully and sprinkling the foliage daily the leaves remain quite fresh, and every tree will grow. Had the roots been permitted to get quite dry, and the foliage been allowed to shrivel, every tree would have died.

Ringling a Pear Tree (J. H.).—Your adviser was a quack, and it appears you have found out he is "no gardener." You will also find out that the operation he has performed will not benefit your tree. It may, however, not seriously injure it, as luckily the ring cut out is narrow, and if the tree is vigorous new bark will grow over the space from which the old has been removed. If the Pear is a good variety, and the tree grows well and is not cankered, we should not graft it, but cut off the old spurs and secure young wood. If the variety is not good, then grafting would be advisable, but it is too late for this now unless you have dormant scions. You had perhaps better let the tree alone, and write us again in the autumn.

Drying Amaryllises (G. P.).—We are aware that it has been recommended not to dry off the plants in the winter, but to keep the foliage green, but not growing, and we have no doubt that plants thus treated were satisfactory and flowered freely; but we also know they will succeed equally well, if not better, if the growth is well ripened in the summer in a high and dry temperature, gradually withholding water in September, and not giving a drop from October till February. In this case the foliage is removed entirely, and the pots containing the bulbs can be stored under a stage in a warm house. It is in this way the plants are treated that are now flowering in Messrs. Veitch's nursery at Chelsea, and finer examples of culture have never been seen.

Layering Chrysanthemums (E. Lawson).—The process is perfectly easy, and with ordinary attention you need have no fear of failure occurring. Plant a few old plants out of doors in a row; let them grow as wild as they choose till the month of July; then take as many pots as plants are required, and plunge them, filled with some rich soil, into the ground, at such a distance from the plants growing in the ground as will allow the tops only, when bent down, to reach the pots; bring them carefully down, and peg each branch firmly in the soil. Leave about 2 inches of the top out of the soil. If the shoot is branched it is well, but if not it must not be topped, because there is some danger that the layer may continue to grow and not flower if topped so late in the season. The aim of this mode of propagation is to make them flower when very dwarf; and, therefore, the layer should have buds upon it just visible at the time when the layering is performed. Keep the soil in the pots moderately moist till roots are formed, and after that water more freely. When it is certain that the layers have made plenty of roots cut them off from the parent plant, and remove them into a frame or pit deep enough to receive them. Should they flag during the day, give a sprinkling of water, and shade for a day or two till they recover; then give air and water freely. They will then be nice plants, about a foot high, with, perhaps, six or ten flowers on each.

Mushrooms (W.).—As you can only obtain such a small quantity of manure you must not expect great results. If the material is very good, and you can procure some older manure and leaves, you may first have a layer of them—say 6 inches thick—and made firm; then a further thickness of 6 inches of the prepared manure would suffice, and altogether you might have a good-sized bed, which, being in a shed, we should have flat and 3 or 4 feet wide. The bed should be a foot thick when pressed firmly. We have had excellent Mushrooms by inserting spawn in declining hotbeds; but whether they would grow in yours we are unable to say, not knowing its condition nor the use to which the bed is to be afterwards applied. If it is an old spent bed that was made last year it will not answer for growing Mushrooms this. If it is a bed made this spring, spawn inserted in May or June will result in the production of Mushrooms in the autumn, provided the temperature and condition of the bed as regards moisture be favourable for the spread of the mycelium.

Spawning Mushroom Beds (A. W.).—When the heat of a bed is declining, and a thermometer with its bulb inserted 2 inches below the surface of the bed indicates a temperature of 80°, lumps of spawn may be safely inserted; but not if the temperature of the bed is still rising, as it may increase to such a degree as to kill the mycelium. When the spawn is inserted it is advisable to cover the bed with litter to prevent the surface drying, also the heat of the bed can be kept nearly uniform by regulating the thickness of the covering. If a thermometer laid on the surface under the litter registers 60° it will be quite right, a degree or two above or below that temperature not being material. The running of the spawn is not "palpable on the surface," or it ought not to be, before casing the bed with soil. If the manure is in good condition, and the spawn good also, the latter will on examination of a lump or two in three or four days to a week after insertion be found to be moving, the mycelium spreading and taking possession of the surrounding manure. The soil should then be added and the beds covered

as before to prevent evaporation from the surface. If the covering is too thick, and the surface of the bed kept too warm—approaching 70°—the spawn will probably soon be too “palpable” on the surface, its presence there in large quantity not indicating a productive and long-lasting bed. Warm water is not, as a rule, used by market gardeners in watering Mushroom beds, except it is warmed by exposure to the sun in tubs or tanks. Under good management they do not need watering in cold weather, as if the manure and soil are properly moist when used, sufficient moisture can be conserved by the coverings and damping the litter as may be needed.

Syringing Vines (*J. T. S.*).—No rule-of-thumb practice such as syringing twice a day, or once a day, can be laid down. Many persons grow excellent Grapes without syringing at all, others produce them by indulging freely in the use of the syringe. It is safe until the growth has fairly started to syringe the rods once or twice a day according to the brightness of the weather, the afternoon syringing always being done soon enough for the Vines to dry before night. On dull days Vines do not need syringing, nor do they after the foliage expands if a moist yet buoyant atmosphere is maintained. Systematically syringing Vines with water that contains much lime is in our opinion decidedly more injurious than beneficial.

Heating Melon House (*Idem*).—Three rows of hot-water pipes enclosed under the bed are excessive—that is, if the water circulates properly and is heated sufficiently for affording the requisite top heat from the pipe along the front of the bed; and if the water does not circulate freely there has been a mistake somewhere in arranging the pipes or setting the boiler. The distance of the pipes from the bed is not material, but so far as we understand your case we should certainly have apertures in the side of the chamber for allowing quite half the heat from the pipes to warm the atmosphere of the house. If you have placed the whole thickness of 12 to 14 inches of soil in the bed at once you have acted contrary to the practice of all good gardeners and their teachings in this Journal. A thin layer of soil is all that is needed at first, say 2 to 3 inches. Mounds are then formed containing half a bushel of soil or little more at suitable intervals for planting. In this way the soil is soon warmed, but by placing in the whole bulk at once the heating of it must necessarily be a much slower process. As the roots of the plants protrude through the mounds they are covered with inch layers of warmed soil until the prescribed space is occupied, and with otherwise good management the plants grow with great rapidity.

Names of Plants (*H. B.*).—*Scilla bifolia alba*. (*G. C. S.*).—The yellow flower is *Doronicum caucasicum*, the Caucasian Leopard's-Bane. The other is *Saxifraga ciliata*. (*E. M. P.*).—The plant is a fungus known botanically as *Cyathus vernicosus*. (*J. B.*).—1, *Asplenium cicutarium*; 2, Too much withered; 3, *Dendrobium Pierardi*. (*J. McN.*).—*Compactia falcata*. (*H. T.*).—*Andromeda floribunda*. (*A Constant Reader*).—1, *Zephyranthes Treatiae*; 2, *Gasteria variegata*; 3, *Asplenium bulbiferum*; 4, *Pteris tremula*; 5, *Nephrodium molle*. (*R. B.*).—1, *Narcissus pseudo-Narcissus*; 2, *Narcissus odorus*; 3, *Narcissus incomparabilis flore-pleno*. We have received some other flowers, which, being unaccompanied by the name of the sender, cannot be named. (*E. S.*).—1, *Asplenium marinum*; 2, *Adiantum ethiopicum*; 3, *Pteris argyrea*; 4, *Davallia canariensis*. (*W. W. K.*).—1, *Cheiranthus Marshalli*; 2, *Erica Cavendishiana*; 3, *Maranta zebrina*. (*X. B.*).—1, a fine variety of *Dendrobium nobile*; 2, *Dendrobium Wardianum*; 3, *Odontoglossum vexillarium*; 4, *Masdevallia Lindeni*, 5, *Phalaenopsis Schilleriana*. (*R. S. T.*).—*Aubrietia deltoidea Hendersoni*.

Flowers for Bees (*A Subscriber*).—The following are amongst the best for affording honey and pollen:—Crocuses, Hyacinths, Mignonette, Wall-flowers, Sweet Alyssum, Candytuft, Beans, Melilot (*Melilotus leucantha*), *Epilobium angustifolium*, and Borage, the last three being excellent. The Scabious and *Nepeta Mussini* are also very good. Fruit blossoms of all kinds yield much honey, as do such wild plants as Clover, Mustard, and Heather. The only reply we are able to give to your second inquiry is that fowls of all kinds are advertised in *Poultry*, which is issued weekly, price 1d. We never recommend dealers.

COVENT GARDEN MARKET.—MARCH 26TH.

No alteration to quote from last week, with the exception of Strawberries, which with a good supply and little demand are reduced in value. Grapes also inclined to go back.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apples	½ sieve	1	6	to 5	0	Nectarines	dozen	0	0 to 0 0
“	per barrel	0	0	0	0	Oranges	100	6	0 10 0
Apricots	box	0	0	0	0	Peaches	dozen	0	0 0 0
Chestnuts	bushel	10	0	0	0	Pears, kitchen ..	dozen	1	0 1 6
Figs	dozen	0	0	0	0	“ dessert	dozen	1	0 5 0
Filberts	lb.	0	0	0	0	Pine Apples English ..	lb.	2	0 3 0
Cobs	per lb.	1	3	1	6	Plums and Damsons ..	..	0	0 0 0
Grapes	lb.	5	0	10	0	Strawberries	lb.	4	0 10 0
Lemon	case	15	0	21	0	St. Michael Pines ..	each	2	0 8 0

VEGETABLES

		s.	d.	s.	d.			s.	d.	s.	d.
Artichokes	.. .. dozen	2	0	to 4	0	Mushrooms	.. .. punnet	1	0	to 1	6
Beans, Kidney	.. .. 100	2	6	0	0	Mustard and Cress	punnet	0	2	0	0
Beet, Red	.. .. dozen	1	0	2	0	Onions	.. .. bushel	2	6	3	3
Broccoli	.. .. bundle	0	9	1	0	Parsley	.. dozen bunches	2	0	3	0
Brussels Sprouts	.. .. $\frac{1}{2}$ sieve	1	6	2	6	Parsnips	.. .. dozen	1	0	2	0
Cabbage	.. .. dozen	0	6	1	0	Potatoes	.. .. cwt.	4	0	5	0
Capiscums	.. .. 100	1	6	2	0	Kidney	.. cwt.	4	0	5	0
Carrots	.. .. bunch	0	3	0	4	Rhubarb	.. .. bundle	0	4	0	0
Cauliflowers	.. .. dozen	2	0	3	0	Salsafy	.. .. bundle	1	0	0	0
Celery	.. .. bundle	1	6	2	0	Scorzoneria	.. .. bundle	1	6	0	0
Coleworts	doz. bunches	2	0	4	0	Seakale	.. .. basket	1	0	1	6
Cucumbers	.. .. each	0	6	0	9	Shallots	.. .. lb.	0	3	0	0
Endive	.. .. dozen	1	0	2	0	Spinach	.. .. bushel	2	6	3	6
Herbs	.. .. bunch	0	2	0	0	Tomatoes	.. .. lb.	2	0	2	6
Leeks	.. .. bunch	0	3	0	4	Turnips	.. .. bunch	0	3	0	0
Lettuce	.. .. dozen	1	0	1	6						



MILDEW IN WHEAT CROPS.

THIS subject is extremely interesting and important to the home farmer, and whatever we may have learned during our connection with practical farming, yet scientific men in their pursuits have proved so observant and persevering that they have been enabled to give us information upon the subject which it was not easy for us to obtain without them. Mildew in Wheat is a very serious impediment in farming, and although it is a question of seasons and weather, yet it may to some extent be mitigated by certain modes of cropping, manuring, and cultivating the land. On some soils in certain climates Wheat suffers more than in others. It is also known that the rotations of cropping have an influence which is not yet understood by the majority of farmers. It is owing to these circumstances that the very excellent essay published in the Royal Agricultural Society of England's Journal, Part ii., for the year 1883, furnished by Mr. W. C. Little of Stag's Holt, March, Cambridgeshire, will prove such a valuable and timely addition to our agricultural literature.

In the course of this essay the author writes as follows:—“Among the numerous diseases which affect the cultivated crops of this country there is probably not one which is more disastrous to the farmer than Wheat mildew. Potato blight and Hop mould may sometimes destroy crops which are more costly, and potentially much more valuable than a crop of Wheat; but growers of these crops have generally some compensation for their losses. Occasionally they make large profits, and with them the part is often greater than the whole, for not unfrequently a deficient crop realises more money than a full crop would have done, because the price has risen in consequence of the short crop. But the grower of Wheat has no handsome profits to fall back upon, and the foreign supply prevents that advance in price which might in some degree make up for a diminished yield. The yield of his crop may be reduced 75 per cent. by mildew, and what remains is scarcely saleable. Widely spread as this disease is, and great as is the damage done by it, there would seem to be many farmers who have never suffered serious injury from it, and some who do not even know what it is. It may therefore be desirable to give some idea of what a mildew year means in the east of England. In 1881 nearly all the white corn crops in the low lands of Cambs, Hunts, Lincoln, Norfolk, and Suffolk were more or less mildewed. Many crops of Wheat were almost entirely destroyed, the Oats were greatly diminished in yield and quality, and in some cases the Barley was considerably injured. The district most severely injured may be defined roughly by the following boundary: From Cambridge, N.E., to Mildenhall, thence north to Stoke Ferry, thence W. by Downham Market to Wisbech, thence N.W. to Spalding, thence S. by Peterborough to Huntingdon, and S.E. to Cambridge again. This area comprises at least 600,000 acres of land, a large proportion of which is under the plough, and Wheat is the staple crop. Probably 25 per cent. of the total area, or 150,000 acres of Wheat, are harvested every year in the district described. In the middle of the month of July, 1881, there was on all the best Wheat lands of this district the promise of a fine crop, which seemed within the grasp of the farmer. Then an attack of mildew came, and the consequence was that the crop of that year was one of the most wretched ever gathered. At harvest many of the best of those crops, which would under more favourable circumstances have yielded from 40 to 48 bushels to the acre, produced only 20 bushels, and some of the very best land yielded only 12 bushels of Wheat, which weighed only 43 lbs. a bushel.”

We have seen such visitations as the above in various districts, but particularly in 1853, 1860, and 1879, with others at a more remote period, and if we tell the truth of our own crops in these years Mr. Little's statement would as nearly represent our own as possible. Physicians, when they have to study disorders which affect mankind or the live stock of the farm, do not content themselves with a diagnosis of the disease; they proceed to ascertain what are the conditions under which the disease is generated or propagated, and they further inquire whether any habits of life, any inherited predisposition, any accidental causes, either spread the disease or make it more destructive in its character. Why should not the same plan be employed in the case of plant diseases? In answer to this question let us refer to those scientific men who are capable of reply, and in doing this we must notice Mr. Carruthers' paper on the subject contained in last year's Journal of R.A.S.E., vol. xviii, pp. 495–503, 1882; and also of a paper contributed to the *Gardeners' Chronicle*

n August, 1882, by Mr. C. B. Plowright of King's Lynn, who is well known as an authority on British fungi.

Mr. Little writes, "Wheat mildew is caused by a parasitic fungus, known as *Puccinia graminis*, which attacks both Oats and Barley, as well as many of the natural Grasses of this country. This parasite lives within the cellular tissue of the plant, sapping its vitals, and converting to its own use the sap which should nourish and mature the grain. The presence of this fungus in the infested host plant is evidenced only by its fruit or reproductive organs, which burst through the cuticle and appear in red and black patches, disposed in rather irregular lines on the leaves, straw, or chaff." The life history of this fungus is remarkable, as, stated by Plowright, "it has no less than five kinds of reproductive forms . . . *Æcidium*, *Spermatogonia*, *Uredo*, *Puccinia*, and *Promycelium*."

Mr. Carruthers says, "The injury done to the Wheat by the rust and mildew arises from the fungus appropriating to its own use the elaborated juices of the Wheat. Fungi are plants without the green colouring or chlorophyl which exists in other plants, and they are consequently unable to separate the carbon from the carbonic acid gas of the air—that is, to manufacture plant food from the raw materials on which plants live, they therefore depend on the already prepared food of the plants on which they are parasitic. The fungus in its rust stage takes possession of the growing plant, and weakens it so far as it appropriates the material which was intended to build up the growing Wheat plant. A few bright sunny days arrest the progress of the fungus, and vigorous plants overcome the attack without any real injury. When, however, the mildew appears at a later stage in the life of the Wheat the conditions are entirely changed. The story of the fungus suggests important considerations to the farmer. First, it is certain that the brown spores of the mildew which remain attached to the straw after harvest are the means by which the fungus retains its vitality through the winter. Converting the straw into manure does not destroy the spores, but rather provides in the spring the conditions fitted for their germination. It may be recommending a serious destruction of property to suggest the burning of mildewed straw, but fire is the only agent that will effectually destroy the spores."

This closing part of the quotation from Mr. Carruthers' paper is a very serious matter for the consideration of practical farmers, as it will be seen immediately that this kind of straw will not sell in towns, nor is it healthy or nutritious food for stock, even if converted into chaff, for in that state it would be as unpalatable as whole fodder. It is therefore very clear that the only use which can be made of mildewed straw is to litter the stables and cattle boxes, and turn it into manure, which brings us to a point for further consideration, How the manure can be used without injury to succeeding crops.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are now engaged in the busiest period of the year, and in various instances, when the first really dry weather occurs, it is frequently difficult even for the most experienced farmers to say which work should be done first. We must, therefore, now suppose that the planting and drilling of Beans and Peas is now over, and that attention must now be given to Barley seeding. One word, however, as to the drilling of Peas. It is a common custom to drill both early or late Peas at about 20 inches, so that horse-hoeing may be done between the lines and hand-hoeing in the lines. One of the best farmers we know contends, as it is his practice, that the Peas should be drilled at 12 inches apart between the rows and hand-hoed only, for it is contended that unless the land be foul with couch grass horse-hoeing is not necessary, if the land is in good heart, and that as soon as the Peas begin to spread, they reach each other and effectually overpower the annual weeds. The best malting samples of Barley are usually grown after early sowing, but the condition of the land best adapted for the crop is a thoroughly disintegrated soil, so complete that a quick rooting for the Barley will be reduced to a certainty; but on the other hand the land should not be made too rich, for if the Barley goes down, lodged, or laid, it is hopeless to expect a malting sample. There is, however, another point worth attention—the distance between the rows if drilled. Now, if the land is rich and in high tilth the rows should be 12 inches apart instead of 7 inches, and two bushels of Barley per acre is an abundance of seed if we are to expect malting Barley. There is another point of importance, that as the value of Barley depends upon an even sample, that it never ought to be sown after roots fed off by sheep, for in consequence of the changeable climate the land can seldom be all alike in condition, even in one field, owing to the tread of the sheep and their irregular lying or folding in variable weather. Therefore we should seed such land in such condition with drege, and if good Barley for malting is required let it be screened and separated from the Oats, and in nineteen cases out of twenty a good malting sample will be the result, whereas Barley grown by itself in a speculative crop not only from adverse circumstances as to weather, &c., but also in consequence upon light soils from the frequent repetition of the crop. The land should now be prepared for Mangold, and the sooner the seed can be deposited in good-conditioned land the better, for the April month is the best seed-time; nor have we ever seen

the young plants as they appear injured by the night frosts of the May month which sometimes occur. The seeding for Carrots is a different matter, for if the land is continued under preparation, or even drilled with Carrot seed after a crop of *Trifolium*, &c., in the second or third week in May, it will save one hoeing, and go far to insure a better plant of Carrots; and as a matter of economy generally we have found it not only a desirable plan, but it insures a better plant as a rule. Cabbages for cattle should now be drilled on the stretch with yard dung or otherwise Peruvian guano, 4 cwt. per acre, sown broadcast, and stretched or ploughed into the stretches, and these can be drilled with seeds of Champion Cabbage with the hand-garden drill or the Scotch stretch drill. When the plants are a good size for hoeing leave the strongest, and the other plants will do for planting with the spade on land after green or catch crops as fast as the land is ploughed.

Potatoes for the main crop should now be set. We are planting the *Magnum Bonum* variety, for they are not only good for sale to the consumers but good croppers, and good keepers into the following spring, and are at the same time seldom attacked with the disease. We, however, are planting small tubers; but if they are to be cut into sets for planting they should be cut between the buds at one end down the tuber lengthways, and should furnish each tuber only two sets, as they have but few buds or eyes, and these are for the most generally at the small end of the tuber.

Hand Labour.—The men, and women too, will now be busy, and should be employed, the latter for the purpose of being in reserve for weeding in the grass and corn as soon as ready. The Clovers are this year forward, and on all forward soils weeding by hand labour may now be done with advantage, for weeds such as Docks and Thistles may now be plainly seen. Planting Potatoes will be going on as work for women; men being employed either in spreading dung, which, being done at planting time, the women may rake it into every third furrow simultaneously with the ploughing; if artificial means are used they should be mixed with damp ashes and strewed into the furrow and covered in with the sets.

Live Stock.—Dairy cattle are now mos'tly in the fields and grass lands, the latter being very early and fit for feeding this year owing to the mild winter and spring hitherto. We prefer, however, generally to reserve for the cows as they calve the best and forwardest grass. On the hill farms the root crops are holding out well; there is also generally a store of Mangold roots for feeding later on with Clovers and Sainfoin, and these will be found almost invaluable in the event of a dry summer, for it will keep the lambs in good and growing condition. For the present, however, we have the water meadows for use, which never were better. The same may be said of the catch crops, such as Rye or Rye and Vetches, also *Trifolium* and Italian Rye Grass, for these latter-named Grasses are invaluable upon hill farms, especially on some which are out of reach of water meadows. The quantity of roots in store are a safe food for fattening cattle in the boxes and stalls, and may hold them on until the end of June and July, when moderately sized bullocks, not too fat, are sure to sell well, notwithstanding our foreign importations, because this in dead meat is not so available in the heat of summer, although it may have kept well by refrigerating during the transit to this country. Fattening sheep should now be sold, because they will otherwise get too fat and too heavy for the butchers in hot weather. It is doubtful also whether they will pay for shearing yet, for the wool trade is not very encouraging.

OUR LETTER BOX.

Cows (V. C.).—There is no general complaining that cows do not prove in calf this year, except in some cases when they have suffered from foot-and-mouth disease it is the case. As regards your cows you do not say when they had this disease, and therefore we cannot say they are likely to be barren in consequence. We should think it more likely to be from inattention in management; but we advise you to consult a veterinary surgeon, who would inquire as to all the circumstances of the case and advise you accordingly.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1884. March.		Baromet- er at 32 ⁵ and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
Sunday		16	30.076	51.8	48.9	N.E.	45.0	68.0	43.2	96.8	36.0	—
Monday		17	30.071	47.0	45.5	N.E.	44.7	67.4	38.0	97.5	33.4	—
Tuesday		18	30.082	54.3	51.9	N.E.	45.6	59.2	43.6	88.6	41.6	—
Wednesday ..		19	30.147	46.3	45.5	S.W.	46.2	51.2	43.4	98.4	38.9	—
Thursday		20	29.966	46.0	42.1	N.W.	46.3	53.4	40.7	93.6	36.0	0.029
Friday		21	29.980	43.4	41.0	N.	45.0	54.4	37.5	97.6	33.4	—
Saturday		22	30.099	41.7	39.8	N.	44.2	53.6	32.0	93.3	28.2	—
			30.060	47.2	45.0		45.3	58.6	39.8	95.1	35.4	0.029

REMARKS

16th.—Very fine all day, and quite summerlike.
17th.—Fog early, then very fine and warm.
18th.—Fine throughout, but cooler.
19th.—Dull all day, and cooler.
20th.—Fine bright day; slight shower about 3.30 p.m., and a little rain in night.
21st.—Cloudy early, then brighter, but spots of rain occasionally.
22nd.—Cold in morning; a fine day, but overcast occasionally.
A fine week with considerable range of temperature, the early part being as warm as the middle of May, and the last day with a frost.—G. J. SYMONS.



COMING EVENTS

3	TH	Royal Society at 4.30 P.M. Linnean Society at 8 P.M.
4	F	Crystal Palace Spring Show, two days.
5	S	Royal Botanic Society at 3.45 P.M.
6	SUN	PALM SUNDAY
7	M	
8	TU	Royal Horticultural Society. (Fruit and Floral Committees at 11 A.M.)
9	W	[Promenade Show.]

PERPETUAL CARNATIONS.

IF we except Tea Roses it may safely be asserted that Carnations are the most serviceable and generally popular flowers in cultivation, this being especially the case with the section known as Perpetual or Tree Carnations. At the same time, fully appreciated as they are, they are by no means generally well grown, neither do they receive such good treatment as their merits entitle them to. Thanks to Mr. Taylor, who when at Longleat not only grew them to perfection, but also instructed many others, myself included, we now thoroughly know their special requirements.

As was pointed out to an inquiring correspondent on page 236, to have Carnations good when most required—viz., during the winter months, the stock of plants should be raised annually, it being found that vigorous young plants are superior in every respect to old plants, no matter how well the latter may have been treated. Cuttings may be struck any time during January, February and March with a fair chance of their being grown into strong flowering plants, but if struck much later the plants will be both smaller and later in flowering. Supposing no cuttings are to be had, would-be growers should procure a few strong plants from a nurseryman of good repute, and it is advisable when ordering to state that they are required for furnishing cuttings. When received they should be stood in the lightest position in a greenhouse or in a house where but little heat is given, carefully supplying them with water and removing all bloom buds, the object being to induce the formation of strong shoots for cuttings.

The tops of strong leading growths are naturally selected by the inexperienced, but these are not the best and will seldom form such good branching plants as those from side shoots. The latter are usually slipped off with as little injury to the main stems as possible, and require but little trimming, the removal of the lowest pair of leaves, which are usually small, sufficing. Any cuttings, however, much above 4 inches in length may well be shortened to a joint much as we would any softwooded plant, but there is no necessity for mutilating or shortening the leaves. Those who have a considerable number of cuttings ready at one time may strike them in boxes not less than 6 inches in depth; these being properly drained, filled to a height of 3 inches with fine loamy sandy soil, and surfaced with silver sand. The cuttings to be dibbled in firmly and about 2 inches apart each way, be watered in and covered with squares of glass, which, if made air-tight by having strips of paper pasted over all the edges, will further assist the cuttings in striking. The boxes may be placed either on a gentle hotbed or on moist stage in a forcing house where no strong fire heat or bright sunshine will affect them. If a few cuttings only are available at a time, these may be inserted thinly round the sides of small pots, and stood or plunged either in a propagating case or a Cucumber frame. Last season our cuttings did not strike so readily in pots, owing to the attack

of some fungus generated in either the loam or leaf soil, which made the plants late. This season we are using peaty soil and large well-drained pots and pans, covering the cuttings with bellglasses, the results being perfectly satisfactory. The soil in the pots or boxes should never be allowed to become dry, and the cuttings require to be shaded from bright sunshine. They take about three weeks to strike.

Directly the cuttings are rooted they commence growing, and to prevent their becoming drawn and weakly gradually remove the glass, exposing the plants to the light and air, and pot them before the roots become much interlaced. The greatest care should be exercised in potting, as the roots are exceedingly fragile and may easily be broken from the stem. We prefer to cut or dig out the cuttings rather than shake them out of the boxes or pots, as in this manner every plant has a small ball of soil about the roots, and little or no check is experienced from the operation. The strongest plants may be placed singly into 3½-inch pots and the more weakly into pots a size smaller, employing a compost consisting of two parts of fine loam to one of sifted leaf soil, with the addition of a little silver sand. The plants should be returned to the shelves or be placed near the glass in a house where a temperature is maintained, say, from 50° to 60°, with the usual rise with sun heat. At this stage particular care should be taken to prevent rapid weakly growth, as they cannot well be kept too dwarf so long as no actual check either from dryness or coldness is experienced. In the case of very strong early plants, or if the plants be much drawn, it is advisable to stop them once; but all that are branching or late struck are best unstopped, or otherwise they will not flower freely until the spring, and perhaps not then.

Before they have become root-bound a shift should be given them, and this in our case is usually into their largest pots. The size of pot given depends upon the vigour of the plants and the habit of the variety. In all cases it is better to underpot rather than overpot Carnations. The majority of ours, however, are flowered in 8-inch and 9-inch pots, but those of moderate growth, such as Miss Jolliffe and A. Alegatière, are either flowered in 6-inch pots or given a second shift. Those late struck may be placed three in an 8-inch or 9-inch pot, and will do better in this manner than if flowered in small pots. I am aware that great numbers of well-flowered plants find their way into the markets growing in 5-inch pots, but for continuous blooming this size is too small.

The compost which appears to suit them well consists of four parts of roughly broken strong turfy loam to one each of good half-decayed stable manure and sifted leaf soil, adding road grit or silver sand freely, and a sprinkling of bone meal. It is not advisable to add any powerful artificial manure to the compost, but it may with advantage be given to them at the flowering period, all the pots to be clean and well drained, and the soil made rather firm to suit the fibrous roots.

The plants after potting should still be kept under glass, not in strong heat, but preferably in a cold frame or pit where they can be kept rather close for a few days. Gradually, and before they become at all drawn, give more air. Towards the end of April and during May the lights are best drawn off on fine warm days, and well tilted in wet weather. When well established give all air possible, and by the end of May the plants may be stood on a bed of ashes in a sunny but sheltered position in the open air. In cold wet districts, and in all cases where there are few roots, the plants are best kept in frames, these being blocked up off the ground so as to admit plenty of air, and the lights pulled off during bright and dry weather. Miss Jolliffe and Souvenir de la Malmaison are the most susceptible of injury from cold rains, and these we rarely move from the frames. All the leading growths should be kept carefully supported, as if once they get crooked they cannot be safely straightened. At Longleat they used to support all bushy plants with birch branches much as we

would pots of Kidney Beans, and this plan we also imitate with advantage.

Towards the end of September, or before wet and cold weather sets in, all the plants should be housed; and as a considerable number of them will have many buds ready to expand, the season may be said to commence from that date, and will last till late in May, even later if house-room can be afforded them. A light airy lean-to greenhouse is the best position for them during the winter, as they require all the light and sunshine possible. In such a house even they must not be crowded together or mixed with other plants, as this, and especially if the plants are at all shaded, results in the formation of little else but long weakly growth. Given all the light possible and air on all favourable occasions, a temperature maintained by fire heat when necessary, ranging from 45° by night to 55° by day, with a proper supply of moisture at the roots, and they will yield blooms in surprising quantities. They may easily be injured by overwatering, especially when first repotted or if badly rooted. Occasional supplies of liquid manure obtained from the farmyard must be given if large blooms are expected, and good substitutes for this are Standen's, Clay's, or other makers' fertilisers as advertised. The former should be freely diluted and the latter used sparingly, either dissolved in water or sprinkled on the surface of the soil and watered in.

Carnations are rather liable to be infested with aphides, especially if in an unhealthy state. Fumigating with tobacco paper is the simplest and most effective remedy. Nicotine soap, quassia chips and soft soap, Hudson's extract of soap, tobacco powder, and other well-known remedies all prove destructive to green fly, and either may be tried by those objecting to fumigating. Red spider also occasionally attacks Carnations and must be kept down by syringing both during hot and dry weather, and when much fire heat is employed.

The most generally serviceable varieties we have here are Miss Jolliffe, flesh colour; Belle Rose, bright rose; Purity, pure white; and Souvenir de la Malmaison, blush white, all being free bloomers and highly scented. The latter is the most valuable, and we are cutting fine blooms of it nearly all the year round. In this case the old plants are retained, these flowering nearly at all times, and which they are encouraged to do till worn out. The spring-struck plants commence blooming the following spring, and these give us much the largest blooms. By way of variety we grow a limited number of other sorts, such as Andalusia, yellow; Laura, pink; both having large fringed flowers, as well as being of vigorous growth; Juliet, white, flowers large and plant vigorous; Sir Evelyn Wood, rich crimson, vigorous, but more dwarf than the foregoing; L'Hermine, white, of medium growth; Annie Williams, pink, of moderate growth; Mons. Baldwin, bright scarlet, large, good branching habit; and Empress of Germany, white, tinged with rose, good habit, and free-blooming. The pink variety of Souvenir de la Malmaison is very tall-growing and flowers in the spring only, consequently is not perpetual flowering. The colour, however, is very pleasing, and the blooms are not much given to bursting. Mrs. George Hawtreys, a rich yellow variety, is another shy-blooming sort, and partakes more of the character of a border variety. Duke of Wellington, bright purple, has not grown well, but it will be given another trial from our own cuttings and which we prefer to small rooted plants as frequently supplied by the trade.—W. IGGULDEN.

TURNIPS ALL THE YEAR ROUND.

IN supplying a kitchen with vegetables all the year round there is nothing more constantly in demand than Turnips, and those who wish to please the cook and their employers should bear this in mind. A great quantity is rarely wanted at one time, but from half a dozen to twenty roots are about the daily requirements for an ordinary kitchen. From this it will be understood that to grow one or two large quarters of Turnips in the year would not be the best way of securing a regular

supply, as Turnips, like most other vegetables, soon become useless when they reach maturity.

The best way is to sow frequently, and above all to grow seasonable varieties. There would be no satisfaction or profit in growing an autumn Turnip in spring as a first crop, a winter one in summer, or only one variety for a supply at all seasons. Seedsmen who study the demands of their customers more than ever, generally classify the varieties as to season, and those wishing for suitable sorts should examine their lists before ordering, but to assist them in doing this at the present time I will name two or three which should be grown by all where a constant supply has to be maintained.

Two of the best early Turnips grown are the Early Milan and Early Munich. They are both purple tops, with flesh of snowy whiteness and of the finest flavour. Either of them, especially the Early Milan, if sown on the same day in March as the Early Snowball or Six Weeks, will be ready for use at least twelve days before the latter, and considering how much tender young Turnips are valued in spring, the fact is well worth remembering. Snowball and the American Strapleaf are good summer varieties. Veitch's Red Globe is one of the very best for autumn use, and Orange Jelly and Chirk Castle are unsurpassed for winter. With these varieties sown at proper intervals no one need have the slightest difficulty in having a supply of Turnips.

Soil to grow good Turnips should not be too heavy and only moderately rich. For the early spring crops the soil cannot be too light, but in summer it may be heavier and richer, as in this they remain tender and sweet in very dry weather. The latest sowings do very well in soil from which early Potatoes and Peas have been cleared. We have sown Turnip seed the last week in January, during February, and onwards, but we never had a really profitable crop from any seed sown before the first or second week in March, the plants lacked vigour and produced flowers before "bulbing." When the first seed is sown in March the Turnips will be ready early in May, and this is a very good time to have them. From March until the end of August seed should be sown every three or four weeks, and then the supply of fresh tender sweet roots will be constant. Our crop of Chirk Castle Turnips has just been lifted and stacked in the same way as farmers treat theirs, with a covering of Fern. There they will remain and keep fresh until new Turnips come again.—A KITCHEN GARDENER.

THE FORMATION AND KEEPING OF WALKS AND DRIVES.

THE first expense in making substantial roads on an estate is always heavy, even in localities where stone is plentiful and comparatively cheap. What, then, must it be where materials are scarce, or wanting altogether, as is sometimes the case? A few practical hints on this important subject may be acceptable to your readers. I now jot down a few thoughts suggested by my own experience, and I hope others may be induced to do the same, especially men of forty or fifty years' standing, as it is to such we must look to for information as to the durability of roads made in their younger days, the materials used, and the manner of using them.

Some men will make an equally durable road with half the material another may think necessary; so much depends on placing the stones on a properly prepared foundation. To make a good carriage drive on level well-drained land is a very simple matter. Having marked it out by placing pegs at regular distances, or notched it off with line and spade, excavate the soil to the depth of 9 inches or a foot deep at each side, but only from 3 to 6 inches in the centre, keeping it exactly the same shape as the road will be when finished. To secure good drainage—and this is especially necessary on heavy lands—dig a shallow drain about 9 inches below the bottom of your road, along both sides, and lay an ordinary 3-inch drain tile. Provide proper outlets for the water at convenient places, and where there is depression in the road gratings must be provided, so that surface water may not stand about the sides and soak into the road. Where these gratings are to be placed a square hole should be dug out about a foot below the drain, to be built up with brick, and the grating let into the top bricks. These are sometimes built too high. A new road, of course, always subsides a little, and if built up to the level of the fresh laid material it becomes useless when it has settled. Workmen should look more to the edge of the road, keeping the gratings 2 or 3 inches below the level of that. On very wet land it is advisable to keep such a road a little above the general level, and this may be done by excavating less soil and using

what is taken out to raise the sides, forming them similar to that shown at A fig. 58.

On such a foundation, 6 inches of granite, whinstone, or flint, broken to the size used in properly macadamising roads, will make a very fair road for such traffic as a carriage road on a gentleman's estate is subjected to. The first-named materials, or any others that equal them in hardness, are of course to be preferred; but flints if broken in the same way as the stone make a fair good road for light traffic. They should, however, never be used in a whole state. The rounded nodules, like coarse beach—also sometimes used—do not bind together, and have not the strength to resist a heavy pressure. The great point in making a road is to get the stones to fit into each other so as to form one mass and stand up as if it were a low arch of bricks. A few of the largest of the stones should be placed on the top of the drains at each side up to the level of the bottom, and then the whole of the surface should be covered with an equal thickness of stones. A thin layer of some suitable binding gravel should then be applied to the surface. If this can lie loose until it has a good soaking of rain, and is then rolled with a heavy roller, it will be all the better, as the top layer of stones will be less apt to get moved than they would if rolled at once. The gravel should not be applied too thickly—just enough to cover the stones when it is settled—and it should be of such a nature as to render the road, so long as it is kept up in the middle, as shown in our section, fig. 58, absolutely waterproof. I may say in passing, that in keeping it in this waterproof condition by never allowing it to become so worn in the centre by the horses' feet, or by the wheels as to give water the least lodgment, lies the secret of good keeping. But more of that anon.

In some localities it is found necessary to use a less hard material, such as freestone. This should not be broken so small, and a greater depth used, and also a greater depth of

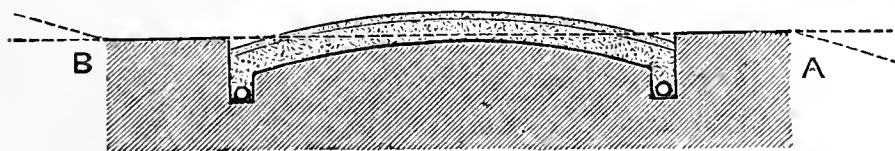


Fig. 58.

gravel placed on the top. This will keep the direct wear off the freestone and provide for keeping the road even, as it cannot be expected to stand the same traffic as hard stone.

In other localities again we find stone of a slaty nature, such as is so plentiful in some parts of Scotland, where they utilise them in building "dry stone dikes" as fences. A very good road may be made of this stone by carting them on the road unbroken and setting them on edge, to the depth of from 6 to 12 inches just as they come, and afterwards breaking the rough points off with the hammer and working the pieces into the larger cavities so as to bring all up to a general level.

Road-making is generally prosecuted during winter, horse and hand labour being then generally less pressingly engaged on other work. I think, however, that it is a great mistake to do so during wet weather. It is especially desirable that the stones should be laid on a dry even surface, and this cannot be effected when it is wet, as the carts plough up the surface of the ground, and consequently there is sure to be some waste of material in the puddles that ensue, and the permanent lasting quality of the road is impaired.

The first steps in connection with making such a road over an undulating surface requires a little more thought and care than on a comparatively level surface. In the first place avoid sharp turns as far as possible. Let the curves be easy and graceful, and as far as possible correspond with the surrounding ground. Cutting through hills and filling up hollows after the manner of making a railway should never be tolerated, except in extreme cases, where the declivity of the ground is so sharp as to render it necessary. When a hollow is filled up ample time should be allowed for it to settle before the stones are placed upon it. In carrying a road across sloping ground some little care is necessary to strike on the right level, so that it will not have the appearance of navvy work about it. As a general rule level pegs may be inserted in the centre to the general level of the ground, and other pegs at each side made level with them. Excavate the soil from the top side and place it on the lower side to make it up to the level of the pegs. This gives a level space from which the soil has to be excavated for the stones in the usual way. A road in such a position should have a level piece of turf on each side, where possible, equal to half the width of the drive. To get this more soil will have to be taken from the high side and deposited on the lower side. The banks on each side should then be gradually sloped to

meet the general level of the surrounding ground as shown at A and B fig. 58. Very steep roads are very liable to be cut up by heavy rains. Gratings should be placed at shorter intervals, the roads kept well up in the centre, and a narrow channel at each side paved with round flints or some other material to prevent its being washed away.—R. INGLIS.

(To be continued.)

HARDY PLANTS IN FLOWER.

RANUNCULUS ANEMONOIDES.—This is Anemone-like to a great extent, having ternately pinnate leaves with numerous linear-oblong segments, rather glaucous, rising above which are the pretty capitula from 1 to 1½ inch across, with numerous white strap-shaped petals. It is indeed a gem among Buttercups, and but rarely met with under cultivation. Although not so fastidious, the plant from which these notes are taken is happily thriving in a damp semi-shaded part of the rock garden.

R. AMPLEXICAULIS.—This is just opening its first flowers, on stems about a foot high, prettily decorated with the stem-clasping leaves. The flowers are pure white, an inch or more across, each stem carrying several. It does remarkably well in a rich sandy soil, and it has not been disturbed till this spring for several years, consequently it had formed dense tufts. It appears not to thrive like this everywhere. It has been in cultivation in this country for a considerable time, for in Johnson's edition of Gerard it is figured and mentioned as being "a denizen of our gardens."

PRIMROSE "HARBINGER."—This is all that Mr. G. Abbey says of it. Like him, I am quite in love with it, and, doubtless, it will find a place in all gardens. It is one of the most useful and showy of the protean Primroses, and may be the progenitor of a sturdy race of white-flowered forms. Mr. Gilbert has sent out many good things, and, in my opinion, this will be one to gratify the million, and thus be ample reward for any raiser. Its large trusses of large white flowers are indeed very beautiful, and the freedom with which it grows in pots render it all the more valuable. It is one of the charming "hybrid Primroses" of which we can scarcely have too many in our gardens. Let every nook be made a pleasant garden with them, and many other pretty flowers which would be only too glad to associate with them.

THE "BLOOD ROOT" (*Sanguinaria canadensis*).—Another gem from the western hemisphere which is far too seldom seen, as it is most distinct and pretty, very hardy and easy to establish, especially in a damp position. It has been cultivated in this country since 1640. A good figure appeared in the "Botanical Magazine," t. 162, and a poor engraving is given in Parkinson's "Theatre of Plants," under the name of *Ranunculus virginianus albus*, or the "White Virginian Crowfoote," page 326; and on page 327 he thus describes it:—"The White Virginian Crowfoot shooteth forth from a reddish tuberous roote, with some small fibres thereto, three or foure somewhat large broad, whitish-green leaves, upon longe foote stalkes, rent or torne on the edges for the most part, along which riseth up a slender naked round stalke, 5 or 6 inches high, bearing one white flower at the toppe, made of tenne, or of twelve small narrow and pointed leaves, with a few yellowish threds in the middle set about a green umbone, which in time groweth to be a long slender pod wherein is contained round whitish seede." Truly a clear and minute description. It appears that Parkinson was the first to describe the plant in this country, for he says lower down the same page, "it hath not been set forth by any before."

DAFFODILS.—These flowers are now charming. The common Daffodil, *N. Pseudo-Narcissus*, is about the only *bonâ fide* species in the trumpet section, varying considerably, of course, but from one form to another there is every intermediate step which connects the whole. Look at *minimus* as the tiniest, and *lorifolius* Emperor or princeps as the largest, and cannot every gradation be traced? How difficult to find substantial points of distinction. In my opinion this is a chain in which there are no "missing links." This day I have examined two forms of *minimus*, one with a short perianth tube, the other lengthened, minor, three or four forms of *nanus*, *lobularis*, and *Pseudo-Narcissus*; and after several efforts to find for these true distinguishing features other than that of a slight difference in size and colour, I gave it up as hopeless. *N. spurius* is a large-flowered variety, very early, close upon princeps, but the latter is not yet in bloom. *N. moschatus* and *cernuus* are both in good order; the former is the earlier and much more robust, thriving well year after year, whereas *cernuus* frequently fails. *N. moschatus* I find increases freely, and has a shorter broader tube than *cernuus*. The double form of the *N. Pseudo-Narcissus* is extremely pretty. In a batch of collected bulbs of this species I have selected some double and semi-double flowers, which seem an evident passage from the single to the duplex form, and this fact gives one another new locality for the double

variety. *Telemonius* fl. pl. is perhaps the best known of all the double Daffodils. Mr. Wolley Dod has what he considers the single *Telemonius*, which is large and distinct from any I have seen. The Tenby Daffodil, *N. obvallaris*, is nearly self-coloured, but the perianth divisions are rather paler than the cup. I recently saw a flower of *N. obvallaris* major which was not much larger than the type, but the perianth segments were spreading at right angles to the trumpet, and rather broader than the species. It was collected in the Pyrenees, and I fancy Mr. Burbidge is responsible for the name.

BULBOCODIUM VERNUM.—This is a pretty little bulbous plant, but pink Colchicum-like flowers preceding the leaves; a tuft of it looks very effective in the woodland or at the foot of the rockery. Originally introduced from Spain about 1629, it was well known to Parkinson, who minutely describes it in his "Garden of Pleasant Flowers" under the name of the "Meadow Saffron of the Spring," but he makes no mention of the variegated-leaved variety which we now have, the leaves being margined with white. I find no mention of this in the old authors. Sweet does not note it as far as I have seen.

MUSCARI MOSCHATUM MAJOR OR FLAVUM.—This is a decided improvement upon the pale-coloured typical form—i.e., if it may be regarded as a variety of *M. moschatum* at all, and if any of the Grape Hyacinths are distinct I am inclined to think this is, and the name *macrocarpum* given to it in Sweet's "British Flower Garden," t. 210, should, I think, be retained rather than *M. moschatum* major, under which it is now distributed from continental centres. Certainly it favours *N. moschatum* more than any other species I know, but the perianth is much larger, decidedly ventricose, and not fluted, while the colour is a long way ahead. The first flowers to open are yellowish, ultimately tinged with red, while the upper ones are violet and in striking contrast with the others, and this gives the plant a very distinctive appearance. It is rather slow to increase by bulb offsets. Last year, however, I saved a batch of seed, and the seedlings are coming on well. It will be only by this means that it will become anything like plentiful in our gardens. Sweet says the figure referred to was taken at Messrs. Whitley & Co.'s nursery at Fulham, who received it as long back as the year 1812 from Constantinople, from whence it was sent by Lady Liston, and it is said to be one of the principal flowers with which the Turkish females continue to correspond in secret with their lovers.

M. ATLANTICUM.—One of the most handsome of the blue-flowered Grape Hyacinths, and second only in this respect to the rarer *M. armeniacum*. The peduncles are about 6 inches high, the floriferous portion 2 inches long, thickly covered with flowers. Perianth three lines long, cylindrical, slightly bulged in the middle, with a large open mouth and slightly spreading white rounded divisions, the tube being deep caerulean blue. It increases freely, and flowers equally free, so that very quickly a good tuft is formed, and a pretty feature added to the bulb garden. I am referring to its behaviour in a rich sandy soil with a good drainage. I am rather doubtful if it thrives so happily in a damp cold position or in clayey soil.

ANEMONE PATENS.—A large form of *A. Pulsatilla* of European hills, coming to us from the mountain ranges of north-west America. It grows about a foot high, the flower heads 3 inches or more across (one I measured this morning was rather over 4 inches), the sepals of a rich violet-purple colour and stout, surrounded by foliaceous silky bracts. The peduncle is also very silky, as well as the leaves, which are larger than those of the ordinary Pasqueflower, the segments broader and stouter. I cannot find that it extends as far west as California, but there is a species found there which is very closely related to this, if indeed it is not identical, or at most but a slender variety.—T. C.

A LECTURE ON THE NARCISSUS.

[Delivered before the Royal Horticultural Society at South Kensington, April 1st, 1884, by F. W. Burbidge, F.L.S., Curator, Trinity College Botanical Gardens, Dublin, and formerly of the Royal Gardens and Herbarium, Kew.]

INTRODUCTION.

HAVING been years ago (1868) a student in your then extensive and beautiful gardens at Chiswick, it gives me all the more pleasure to read a short paper here to-day. My subject is the Narcissus, or "Flower of March," the Daffodil that "comes before the swallow dares." Tennyson seems undecided whether to make the Daffodil belong to blustering March or to showery April. We all remember his "Roaring Moon of Daffodils," but in a still prettier passage he sings of

"A rosy blonde, and in a college gown,
That clad her like an April Daffodilly."

Pleasant as is my duty, yet when I look around me here I feel that it is presumptuous indeed on my part to speak before you on these flowers beautiful, since I must needs do so in the presence of those who really know far more of these fair "Lilies of Lententide" than I can hope to tell to you in half an hour.

Around us here to-day is, without a doubt, by far the finest collection of Narcissus blossoms ever brought together in one place. Thanks to the

energy of the honorary and active officers of your Society; thanks also many and sincere to the liberality of amateurs, as also to the enterprise of trade cultivators, we have here at our feet to-day a "field of the cloth of gold" even more brilliant than that one in particular which the old chroniclers have described so well; and the result of this gathering is a focussing, as it were, of all the golden beauty which Daffodil cups may contain. Speaking of Daffodil colour reminds me that this is by no means an ordinary flower show—no prizes are offered to-day, unless indeed it be that "crown of wild Olive" which the Greeks prized more than gold. We have here to-day an exhibition of flowers which have come to us for very love, and not for the sake of money prizes—an exhibition which proves that devotion to Flora as a queen among us is as yet a living truth, and that among or around the hearts of all true gardeners there is woven "a thread of twisted gold." But our time is limited, and I shall not further trouble you by way of introduction, but shall now with your permission proceed to the history of the Narcissus itself.

HISTORY.

It is generally believed that the earliest, or at least one of the earliest species of this genus to attract the attention of the wise men and poets of Greece first, and of Italy afterwards, was our garden favourite of to-day, *Narcissus poeticus*, hence, no doubt, its popular name of the "Poet's Narcissus." Both *Narcissus poeticus* and *Narcissus Tazetta* ("Little Cupped Italian" or "Polyanthus Narcissus") are mentioned by Dioscorides. Virgil also alludes to an "empurpled Narcissus," and although the exact plant is doubtful, yet it is by many believed that it was some form of *N. poeticus* which he had in view. Of far more moment to ourselves now is the great

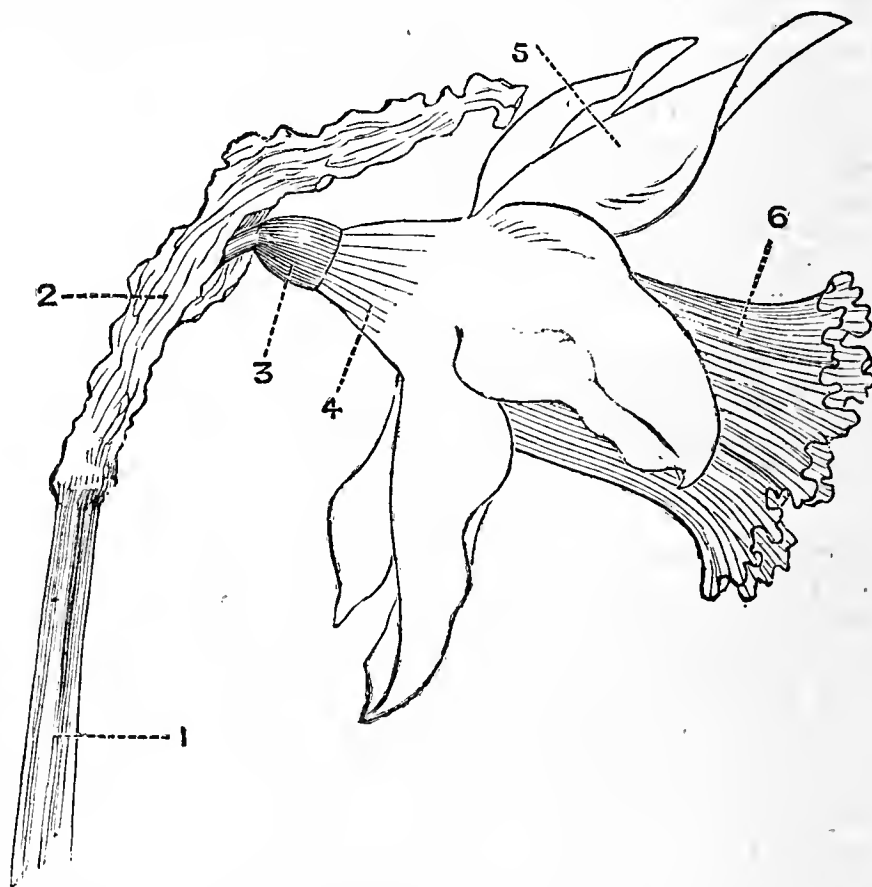


Fig. 59.—Narcissus flower—1, scape; 2, spathe or bract; 3, ovary; 4, tube; 5, perianth segments; 6, crown or trunk (corona)

central fact that the Narcissi of our own gardens are as lovely here to-day as they were when the poets of Greece and Italy first sang their praises.

Nearly all early writers agree in treating this flower as an emblem of that beautiful boy whose name it bears. He is said to have slighted the nymph Echo in favour of his own shadow, and Nemesis changed him into this blossom as a punishment for his self-esteem. It is a deep-laid myth, and a pretty one as often told to us by the poets, and in one of the best of English translations we are informed the attendant nymphs in searching for the body of the ill-fated hero could see nothing but uprising stalks bearing golden blossoms—

"And looking for his corse they only found
A rising stalk with yellow blossoms crowned."

According to Shakespeare Proserpina let fall the Daffodil flowers she had been gathering when seized by Pluto, but, as Professor J. P. Mahaffy, F.T.C.D., informed me some time ago, the earliest accounts of this myth tell us a little too much, the flowers being therein spoken of as "Black Narcissus," hence we must believe, or at least suppose, that some other flower was originally intended. It may have been some Fritillary which had pleased the fair girl, since even at so late a date as 1629 we find John Parkinson in his "Paradisus" alluding to Fritillarias as "Chequered Daffodils." No doubt like Lily, Rose, and Violet, the name Daffodil or Narcissus had a much wider meaning and application in olden times than we give them to-day. For example, the Rev. H. N. Ellacombe in his "Plant Lore of Shakespeare" (p. 57), tells us that the "Rose of Sharon" was the large yellow Narcissus common in Palestine and the East generally, of which Mahomet said, "He that has two cakes of bread let him sell one of them for some flowers of the Narcissus, for bread is food for the body, but Narcissus is the food of the soul."

The name Daffodil is said by some scholars to be "simply the old English word 'affodyle,' which signifies that which cometh early." Dr. Prior, however, who is no mean authority, looks upon it as a corruption of the Latin *Asphodelus*, and thus it may be identical with the *Asphodel*. He further tells us that the name Daffodil "was subsequently confused with that of another flower, the so-called Sapharoun," or "Saffron Lily." By alliteration the "Sapharoun Lily," on becoming blended with "Affodilly," became by a

ort of mutual compromise "Daffadowndilly," in which form it is used by Spencer in the lines, "Thy summer proude with Daffadillies dight," and "Strowe the green round with Daffadowndillies." Daffodil and Asphodel have, however, long been distinct enough in popular parlance; but there was at one time a danger of confounding them, since Markham, in his "English House Wife" (1637), says, "You must be careful that you take not Daffodil for Asphodel." Among the many local or country names for the Daffodil the most common now-a-days are Lent-Bellflower, Lenten Rose, "Lent Lilies," "Trumpets," "Trumpet flowers," and "Chalice flowers." Culpepper calls it Lide Lily, because it flowereth in March, which month in some counties is called "Lide," "Lide" itself, like "Lent," being an equivalent for the spring season. Popular names have fit uses, but unless very carefully applied they are apt to lead us astray sometimes, and so we must always remember that the popular name Daffodil in all its forms (excepting the "Hooped Petticoat" or "Rush-leaved" Daffodil, which is different) is applied only to the varieties of that very variable native plant, *Narcissus pseudo-Narcissus*, the wild Daffodil of our meadows and northern Europe, or the False or Spurious Daffodil of Parkinson, who so called it doubtless to distinguish it from the other flat-leaved or true *Narcissi*, of which *Narcissus poeticus* and *Narcissus Tazetta* may be taken as good types.

POPULAR NAMES OF THE SECTIONS.—All varieties of *Narcissus Pseudo-Narcissus*, then, whether native or foreign, may be called "Flat-leaved" or "Trumpet Daffodils."

All forms of *Narcissus Bulbocodium* (the *Corbularias* of some gardens) may be called "Hooped Petticoat" or "Rush-leaved Daffodils."

"Jonquil" is another popular name, belonging by right to *Narcissus jonquilla*, but it may be applied to any true *Narcissus* having narrow bright green or rush-like leaves.

The "Poet's *Narcissi*" are all those which have pure white perianth segments and a distinct red or purple rim to the shallow yellowish corona or crown.

"*Polyanthus Narcissi*" are, properly speaking, all forms of *Narcissus Tazetta*.

The "Peerless *Narcissi*" are all those of the *N. incomparabilis* type in the genus, and the "Primrose Peerless" is *Narcissus biflorus*.

Hence these popular names, which confuse us so much when loosely applied, if used rightly and carefully serve to distinguish for us the different well-marked sections of this beautiful genus.

STRUCTURE OF THE NARCISSI.

We shall now turn to the structure and botany of the *Narcissus* as it is known to us to-day. The species of *Narcissus* (for even Daffodils are, strictly speaking, *Narcissi*, although only the large-trunked *Narcissi* are Daffodils) form a genus of bulbous plants belonging to the natural order or group *Amaryllidaceae*, of which the *Amaryllis* is the type. But our *Narcissi* differ from *Amaryllis* proper in having a crown or corona, and thus they represent for us here in Europe, not the *Amaryllis* itself, but the *Eucharis* and *Hymenocallis* of the new world. At the same time the structure and origin of the crown seems different. In *Eucharis* the corona is formed by the cohesion of the flattened filaments of the anthers, which themselves are joined to and protrude beyond the crown they form. In *Narcissus*, however, the corona appears to be a prolongation of the tubular portion of the flower. A *Narcissus* flower when examined is found to possess an inferior ovary situated at the base of a cylindrical or obconical tube. From varying localities along this tube spring six perianth divisions (in two series), and beyond these a cup or crown is prolonged as shown in fig. 59.

DAFFODILS versus NARCISSI.—Now we find among the *Narcissi* generally two well-marked and distinct variations in their flowers. In the Daffodils, for example, the six stamens are of equal length, and have the same point of insertion low down near the obconical tube as here shown (fig. 60):—

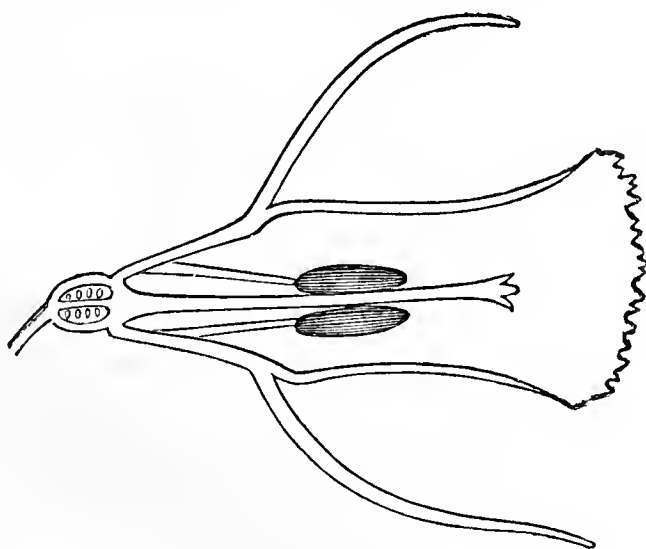


Fig. 60.—Daffodil.

When a flower of the true or "Poet's *Narcissus*" is examined, however, we find some marked differences, as shown in the diagram (fig. 61).

It will be observed that the tube is here very much longer and quite cylindrical, and when we make a section of the flower we find the six stamens are divided into two sets of three each, and that each set has its own locality or point of insertion—three near the mouth and the other three much further down, midway twixt crown and ovary. I have not time to go into minute details; but I need scarcely say that there are good reasons for these structural variations. They are especially fitted for (owe their origin, it may be), to insect fertilisation; and, as we shall soon find, these two distinct species are not unfrequently cross-fertilised in a wild state, and this has happened much more frequently in our gardens, or perhaps it may be in gardens their progeny has been more carefully preserved. Before I leave this part of my subject I wish to point out that nearly all the variations in

form of which a *Narcissus* flower is capable are owing to the sliding, as it were, of the whorl of perianth segments along the tube of the flower. Thus we find the length of the cup or crown and the length of the tube always, or nearly always, vary in inverse proportion, just as I have shown them to do in the sketch (fig. 62).

It is well to get the essential differences of these two species well fixed in

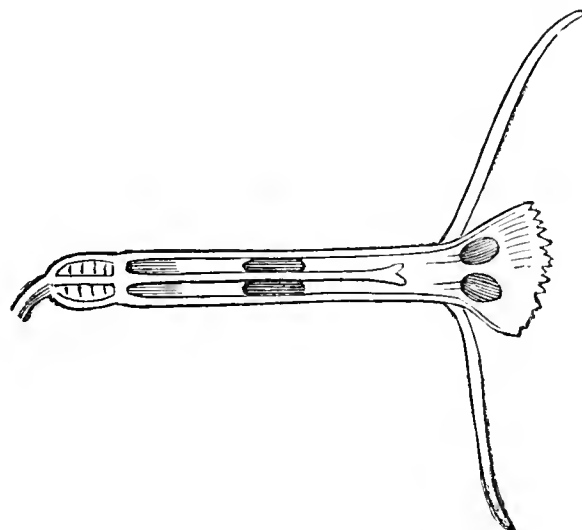


Fig. 61.—Poet's *Narcissus*.

our minds, as we thus get a clear light in which to see the part each species has borne in the production of garden hybrids and seedlings.

I ought to point out here that some superficial distinctions are produced by the manner and degree of expansion usual to the perianth divisions. In the "Hooped Petticoat" (*Narcissus Bulbocodium*), for example, the perianth divisions are narrow and inconspicuous, lying as they do in the same plane with the coronal margins. In the "Common Daffodil" the perianth lobes are broader and more expanded. In *N. incomparabilis* and in *N. poeticus* they are expanded at right angles to the tube and so become star-like; so also in the "Little Cupped Italian" or *Narcissus Tazetta* group, while in the case of this "bonnie" gem *Narcissus triandrus* we get a very distinct Cyclamen-like blossom, seeing that the perianth lobes are sharply reflexed or turned back, so that they be parallel with the pendant flower tube.

THE COLOUR OF NARCISSI.—In colour the *Narcissi* are not so variable as many other bulbous flowers. We get all shades of yellow and of white in the perianth. One species, *N. viridiflorus*, known to Parkinson, and recently re-introduced by Mr. George Maw, has greenish blossoms. Among the *N. incomparabilis* varieties we find cups richly tinted with orange-red; so also in some forms of *N. Tazetta*, while *N. poeticus* has a red or purple rim to the crown.

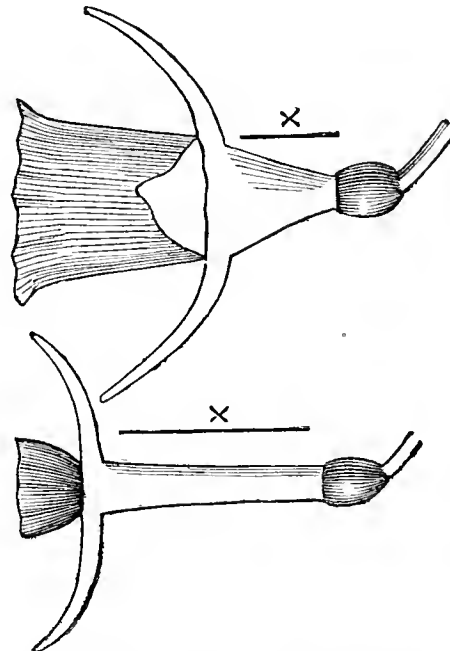


Fig. 62.—Daffodil with long crown and short tube, *Narcissus* with short crown and long tube.

"Everybody knows that the common Daffodil has an extinguisher-shaped deep yellow corona an inch or more in length, while the cup of the "Poet's *Narcissus*" is flat and shallow, yellow also, but having a dark reddish-purple rim around its margin. Now, in the hybrid *N. incomparabilis* and many of its seedling forms we find the outer edge of the cup suffused with reddish-orange, which is just the tint obtainable by mixing deep yellow and reddish-purple on the palette."—(*Burb. "Cult. Plants," 1875, p. 125.*)

THE SPECIES OF NARCISSI.—We must now pass in review the species of the genus, and I shall be glad if you will allow me to refer briefly to their classification afterward.

NOMENCLATURE OF THE NARCISSI.—We have in all about twenty species of *Narcissus* which are known to exist in a wild state.

LIST OF THE SPECIES OF NARCISSI, SHOWING DISTRIBUTION.

Species.	Native Countries.
1, <i>N. Pseudo-Narcissus</i>	Sweden, England, Portugal, Spain, Italy, Transylvania.
2, <i>N. Bulbocodium</i>	Spain, Portugal, France S.W. to Bordeaux, N. Africa.
3, <i>N. incomparabilis</i>	Spain, S.W. France, Tyrol.
4, <i>N. Maeleaii</i>	Not wild.
5, <i>N. dubius</i>	S. France, (Toulon, Marseilles, Avignon, Nice).
6, <i>N. poculiformis</i>	(montanus) not wild.
7, <i>N. odorus</i>	Spain, S. France, Italy, Dalmatia.
8, <i>N. juncifolius</i>	Spain, and S. France.
9, <i>N. triandrus</i>	Spain.
10, <i>N. calathinus</i>	Isle of Glenans, Brittany.
11, <i>N. Tazetta</i>	S. Europe, Cashmere, N. India, China, Japan.
12, <i>N. pachybolbus</i>	Algeria (? <i>N. Tazetta</i> var.).
13, <i>N. biflorus</i>	France, Switzerland, Italy, Tyrol.
14, <i>N. poeticus</i>	S. Europe, France to Greece.
15, <i>N. Broussonetii</i>	Mogadore (Africa).
16, <i>N. canariensis</i>	Canary Islands.

Species.	Native Country.
17, N. intermedius	Spain, S. France, Balearic Islands.
18, N. gracilis	Not wild.
19, N. Jonquilla	Spain, S. France, Italy to Dalmatia.
20, N. jonquilloides .. .. .	..(Willkom Fl. Hisp.) Spain.
21, N. viridiflorus	Spain and Barbary.
22, N. elegans	Italy, Sicily, Algiers.
23, N. serotinus	Spain, S. Europe, Barbary States, Greece and Palestine.

DOUBTFUL SPECIES OF NARCISSUS.—I may here mention that among generally acknowledged species there are two or three which have never been found wild. These are N. Macleaii, N. poculiformis (montanus), and N. gracilis. It is questionable if these are really species, my own opinion being that they are old and well-marked garden hybrids or seedlings. N. pachybolbus and N. canariensis should, I think, be considered as outlying geographical forms of N. Tazetta. N. jonquilloides of the "Flora Hispanica" (Willkom) I have not seen alive, but in the plate it resembles N. intermedius. N. calathinus must now be referred to N. triandrus.

Others, again, which really do exist wild without a doubt, have also had their exact counterparts produced in gardens. Thus, on the authority of Dean Herbert and others, N. incomparabilis and N. odorus, both well known as wild in Southern Europe, have been produced in gardens by hybridisation.

EARLY CULTURE OF NARCISSUS.—Most of the species of Narcissus were known to the early English gardeners, more particularly to John Parkinson, who figures and describes ninety-six species and varieties in the year 1629.

GEOGRAPHY OF THE NARCISSUS.—Nearly all these kinds are found wild in Europe. Spain and the south of France seem to be the focus of the genus, but a few are found in northern Africa.

N. Tazetta is most ubiquitous, growing all over southern Europe and northern Africa, and then going off at a tangent through Persia, Cashmere, and India as far east as China and Japan.

CLASSIFICATION OF THE NARCISSUS.—Parkinson seems to have been the first to attempt any classification, and he is very particular that we should distinguish Daffodils from Narcissus proper, and is equally careful lest we should confound the flat-leaved with the rush-leaved kinds. At a more recent date Salisbury, Haworth, and Herbert all worked among these flowers, but their methods of classification, although most interesting to garden students, are now botanically obsolete. We are indebted to Mr. J. G. Baker of Kew for a clear and useful system of grouping, published in 1869, and it is this system, with a few modifications, I shall bring before you to-day.

Mr. Baker's plan depends on the relative length which naturally exists between the perianth segments as contrasted with the cup or corona, and I have divided these three main divisions into flat-leaved and rush-leaved groups.

The three main divisions as characterised by the varying size of their cups or crowns may be thus popularised :—

- LARGE-TRUNKED.
GROUP I. (MAGNICORONATE) or "COFFEE-CUP" SECTION.
- MEDIUM-CUPPED.
GROUP II. (MEDIOCORONATE), or "TEA-CUP" SECTION.
- SMALL-CROWNED.
GROUP III. (PARVICORONATE), or "TEA-SAUCE" SECTION.

CLASSIFICATION OF THE GENUS NARCISSUS.

GROUP I. Magnicoronatæ. Crown as long, or longer than the perianth divisions.	GROUP II. Mediocoronatæ. Crown half or rarely three-quarters as long as the perianth divisions.	GROUP III. Parvicoronatæ. Crown less than half as long as the perianth divisions.
<div>TRUMPET DAFFODIL. a. Flat-leaved. 1. N. Pseudo-Narcissus vars.</div> <div>HOOPED-PETTICOAT DAFFODIL. b. Rush-leaved. 2. N. Bulbocodium vars.</div>	<div>MEDIUM-CUPPED NARCISSUS. a. Flat-leaved. 3. N. incomparabilis 4. N. Macleaii 5. N. dubius 6. N. poculiformis</div> <div>b. Rush-leaved. 7. N. odorus 8. N. juncifolius 9. N. triandrus 10. N. calathinus</div>	<div>SMALL-CROWNED NARCISSUS. a. Flat-leaved. 11. N. Tazetta 12. N. pachybolbus 13. N. biflorus 14. N. poeticus 15. N. Broussonetii 16. N. canariensis</div> <div>b. Rush-leaved. 17. N. intermedius 18. N. gracilis 19. N. Jonquilla 20. N. jonquilloides 21. N. viridiflorus 22. N. elegans 23. N. serotinus</div>
<div>a. Flat-leaved. 1. N. pseudo-Narcissus.—The type of this species is the common Daffodil of English meadows and orchards, and of this type there are innumerable forms, ranging from the tiny N. minimus up to N. maximus, which is the tallest and largest of its race. All the varieties have flat glaucous leaves.</div> <div>b. Rush-leaved. 2. N. Bulbocodium.—The type of this species is N. Bulbocodium, the "Rush-leaved" or "Hooped Petticoat" Daffodil of Southern Europe. There are many varieties, all easily recognised by the expanded crinoline-like corona, narrow perianth segments, declinate stamens, and green rush-like leaves.</div>	<div>a. Flat-leaved. 3. N. incomparabilis.—1-flowered; leaf half an inch broad, glaucous. 4. N. Macleaii.—1-2-flowered; leaves broad, greenish; crown bright yellow, three-quarters as long as the spreading white perianth segments. (?) Hybrid. 5. N. dubius.—Many-flowered, with flattish glaucous leaves; perianth segments 3-5 lines long, cup 3 lines deep. 6. N. poculiformis.—1-2-flowered, all white; crown half as long as the perianth divisions; flower "dog-eared," but 3-4 inches in diameter.</div> <div>b. Rush-leaved. 7. N. odorus (Campernelle Jonquil).—All yellow, 2-5-flowered, with bright green Rush-like leaves. 8. N. juncifolius.—1-5-flowered, much smaller than N. odorus, with a flattish corona. 9. N. triandrus.—1-5-flowered, perianth divisions reflexed like a Cyclamen flower. 10. N. calathinus.—1-2-flowered, with reflexed segments like the last; perhaps only a geographical form of it, having larger flowers.</div>	<div>a. Flat-leaved. 11. N. Tazetta.—Many-flowered, with flat glaucous leaves; very variable. *12. N. pachybolbus. 13. N. biflorus.—1-3-flowered; flowers like N. poeticus; creamy white, cup pure yellow. 14. N. poeticus.—1-flowered; white, with a purple or red edge to the crown. 15. N. Broussonetii.—Crown nearly suppressed. *16. N. canariensis.</div> <div>b. Rush-leaved. 17. N. intermedius.—A many-flowered yellow N. Tazetta with rush leaves. 18. N. gracilis.—1-2-flowered; flowers pale yellow, as large as N. poeticus. 19. N. jonquilla.—Many-flowered; flowers deep yellow; very fragrant. 20. N. jonquilloides.—(Willkom Fl. Hisp.).</div> <div>c. Autumn-flowering. 21. N. viridiflorus.—Many-flowered; perianth greenish. 22. N. elegans.—1-3-flowered; pure white. 23. N. serotinus.—Flowers after the leaves very like the last, but with broader perianth segments.</div>

THE HYBRID AND SEEDLING NARCISSUS.

When we come to speak of Narcissus hybrids it is a matter of regret that the workers in this fertile field have left us scarcely any data or notes of how their numerous seedling and hybrid forms were produced. Dean Herbert (in Jour. R. H. S., vol. ii., p. 1) has told us more than anyone; and the late Mr. W. Backhouse of St. John's, Walsingham (who raised the "Empress" and "Emperor" Daffodils), contributed an interesting paper to the Gard. Chron. for June 10th, 1865. The late Mr. Leeds of Longford Bridge, Manchester, who raised more new kinds than anyone else, gave us no information whatever, nor did the late John Horsefield, the Lancashire weaver, who raised the "Bicolor Horsefieldii Daffodil," decidedly one of the most robust and beautiful of its race. The late Mr. Nelson, of Aldborough Rectory near Norwich, raised a few varieties of especial merit, notably the noble sulphur Daffodil named "Gertrude Jekyll," and a white form of the dwarf Daffodil (N. nanus). Mr. Nelson kindly told me by letter only a few days before his death that cross-fertilisation was not resorted to. So Mynheer Simon de Graaff of Leiden informs me that his fine new kinds are seedlings or wind-fertilised hybrids. These remarks corroborate what Mr. Backhouse wrote in the Gardeners' Chronicle twenty years ago (June 10th, 1865), when, speaking of artificial crosses between the "Daffodil" and the "Poet's Narcissus," he says, "Seeds I have sown from plants not artificially impregnated produce the same result, some showing the Daffodil and others the N. poeticus type." The moral here would seem to be, Raise seedlings—hybrids if you can—but raise seedlings."

Here is a list of all known type hybrids so far as we at present know them.

HYBRID NARCISSUS.

PARENTS.	HYBRIDS.
N. Pseudo-Narcissus × N. poeticus	= × N. incomparabilis.
" " " × " Jonquilla	= × " odorus.
" " " × " Tazetta	= × " Macleaii.
" Jonquilla " × " "	= × " gracilis and tenuior.
" " " × " "	= × " intermedius and jonquilloides.
" poeticus " × " Macleaii	= × " Nelsonii in variety.
" " " × " Pseudo-Narcissus	= × " Barrii
" " " × " " "	= × " Burbidgei "
" incomparabilis " × " " "	= × " Humel "
" poculiformis " × " " "	= × " Leedsii "
" incomparabilis " × " " moschatus	= × " Milneri "
" poeticus " × " " muticus	= × " Bernardii "
" Macleaii " × " " "	= × " tridymus "
" Tazetta " × " poculiformis	= × " Mastersianus.

DERIVATIVE HYBRIDS OF NARCISSUS.

Some of these hybrids have again yielded seedlings, so that the variations now observable are of the most divergent and perplexing kind; so much so indeed that some have complained that there is too much sameness among the newer kinds of Narcissus. This much is true of Roses or Auriculas, indeed of nearly all garden flowers, and after all it is easy to use one's eyes on a day like this, noting the most beautiful from one's own standpoint, and resolutely avoiding those which do not please our taste. To my mind the delicate chromatic scale—the subtleties of form and of colour these new seedlings afford us—are most beautiful, and a garden tastefully planted with

them would afford its owner beauty of a most satisfying kind, even if it did not prove a "joy for ever."

POETRY OF THE NARCISSUS.

Of this I shall say nothing more, since in the first place I am sure it is in your hearts, or at least you may find it in your libraries. But I have a few words to say in conclusion on the cultivation of these beautiful flowers.

CULTURE.

The culture of all the Daffodils and of nearly all the Narcissus is not difficult. Most of them are robust enough to increase in beauty from year to year if planted at the proper season in well-tilled soil. Some of the dwarf and tender species, as *N. triandrus*, *N. juncifolius*, *N. Bulbocodium* (especially the paler forms), *N. viridiflorus*, *N. elegans*, and *N. serotinus*, succeed best in pots in a cool house or frame. The white race of Daffodils also do best on a warm sunny border, but the yellow and bicolor Daffodils, and nearly all the hybrid kinds, will luxuriate in the open air border almost anywhere. The proper time to transplant your Narcissus generally is in June, July, or August. They may be dug up as soon as the foliage has withered away, and if replanted immediately in good well-drained soil they do not suffer much, if any, by removal. It is a good plan to mulch well with rotten manure just before flowering time; and if you want very fine fresh flowers for show or decorative uses cut them whilst they are in the bud stage, and place them in water indoors to expand.

If you post flowers to your friends pack them in the bud stage. You can thus send many buds, which will each and all open fresh and fair if placed in water immediately on their arrival. It only remains for me, Mr. Chairman, and ladies and gentlemen, to thank you for the kind attention you have given me.



AN INTERNATIONAL EXHIBITION is announced to be opened at Antwerp in May, 1885, which will include contributions of plants and other horticultural productions, besides the ordinary commercial exhibits and examples of art. It is under the patronage of King Leopold.

— THE charming little rock plant, *PRIMULA FLORIBUNDA*, is no much known at present, but well deserves attention; for though dwarf in habit and its flowers very diminutive, their colour is such a bright shade of yellow, they are so numerous, and are produced in succession over so long a period, that it is certain to become a general favourite. It is readily increased by seeds, and is attractive when grown in pots for a cool house.

— THE WIMBLEDON AND DISTRICT HORTICULTURAL SOCIETY will hold their twelfth annual Exhibition in the grounds of Wimbledon House, on Wednesday, July 2nd. A large number of special prizes are offered by local supporters of the Society, in addition to those provided in the schedule, which enumerates eighty-five classes.

— *AJESA REFENS PURPUREA*.—An advertisement in a contemporary has been brought to our notice in which a plant for carpet bedding is described under the above remarkable name. It is quite new to us, and we should be glad to have further information about it. Is it possible that *Ajuga reptans* is the plant intended?

— THE CROYDON HORTICULTURAL SOCIETY'S SHOWS for the present year are announced for June 25th and November 11th and 12th. The former to be held in the grounds of Wellesley House, and the latter in the small Public Hall, Croydon. At both the classes are numerous and the prizes of good value, especially in the open classes.

— A CORRESPONDENT writes:—"In the report upon LIVERPOOL SPRING SHOW, page 245 of your last issue, a mistake occurs as to the number of collections of herbaceous and bulbous plants staged. It is there stated that 'only two collections were staged,' whereas there were three. Amongst the plants credited to the Chester collection were *Primula Sieboldi*, *P. rosea*, *Narcissus Trumpet major*, and *Iris Beauty*, none of which belonged to that collection; and while *N. Trumpet major* is adopted as a variety of *N. odoratus*, there is still room for great improvement."

— THE BATH FLORAL FETE COMMITTEE announce the following exhibitions for the present year:—A spring show, May 14th; Rose show, July 3rd; autumn show, September 3rd and 4th; and Chrysanthemum show, November 12th and 13th. Liberal prizes are offered in all the leading classes at each exhibition; plants, flowers, fruit, and vegetables being duly provided for.

— MESSRS. S. MAHOOD & SON, Putney, send us a collection of SPRING FLOWERS, including pretty specimens of *Chionodoxa Luciliae*, with flowers large and bright blue; *Anemone Robinsoniana*, early, flowers of good colour; *Muscari pallens*, really a pale blue variety of *M. botryoides*; the Nodding Star of Bethlehem, *Ornithogalum nutans*; *Triteleia uniflora* and *lilacina*, white and lilac; the Caucasian Leopard's Bane, *Doronicum caucasicum*, large and bright yellow; *Anemone fulgens*, single and double, most brilliant and handsome; the Spring Snowflake, *Lencium vernum*; *Iris reticulata*, and *Fumaria officinalis*.

— THE NORTHAMPTONSHIRE CHRYSANTHEMUM SOCIETY'S THIRTEENTH ANNUAL SHOW will be held in the Corn Exchange, Northampton, on November 19th and 20th of the present year, when prizes ranging in value from four guineas to one shilling will be offered in sixty-six classes for Chrysanthemum blooms, specimen plants, and vegetables.

— GARDENING APPOINTMENT.—Mr. John Wyke, formerly gardener to J. P. Kidston, Esq., Nym Park, Barnet, Herts, has been appointed gardener to Captain Alcock, Henley Grove, Westbury-on-Trym, near Bristol.

— WE have received the schedule of prizes of the CATERHAM HORTICULTURAL SOCIETY, the sixth annual show of which is to be held on July 23rd. The report states that the Society has two objects—the improvement of the gardeners of the district and the development of practical gardening among cottagers. Both these are good objects, and we wish the Society success.

— MR. W. J. CARVILLE, of Lewes, instances as evidence of the EARLINESS OF THE SEASON the circumstance of his cutting a bunch of *Asparagus* from the open ground on April 1st.

— THE largest producers of TOBACCO are the American States of Kentucky, Virginia, North Carolina, and Tennessee. The production for 1882 was 513,077,588 lbs., grown on 671,522 acres, or about 1000 square miles, and valued at 43,189,951 dollars. The average value was 64.32 dollars per acre. This is more profitable than Wheat or corn-growing would be in the same districts. In 1883 America exported Tobacco to the value of 22,095,229 dollars, and imported to the value of 11,775,596 dollars, or over 50 per cent. of our exports.

— THE value of COW MANURE AS A STIMULANT FOR PLANTS has been long known in gardens, but never until recent years has it been so largely and generally employed for plants that have previously been considered independent of such assistance. A man who some years ago might have suggested giving it to Orchids or *Nepenthes* would have been almost regarded as insane, yet some of the best-grown Pitcher-plants that we have seen are greatly aided by cow manure administered in a mild diluted form, while most of the stronger-growing Orchids, such as *Dendrobies*, are similarly treated with proportionate advantage. Water Lilies are much benefited by a liberal admixture of this manure with the compost, and we have heard of one experienced cultivator who is very successful with the queen of Water Lilies—the *Victoria regia*—employing one cartload of cow manure to three of loam as soil, this apparently large proportion resulting in foliage of astonishing vigour and large flowers.

— IN the Palm house at Kew a fine specimen of *COFFEA ARABICA* is now fruiting well, and has a remarkably handsome appearance. The tree is 12 feet high, furnished with branches to near the base, and these are thickly studded with the bright crimson oval fruits, the total number being about 400. Very rarely is a Coffee plant seen in such good condition in England, and its horticultural value cannot be overestimated when fruiting so freely as this one is.

— THE OLD LILY HOUSE in the same establishment is being reorganised, and it is now disconnected from the Palm house in the heating arrangements. A great difficulty has long been experienced in insuring a full command of heat for the smaller house owing to the distance the pipes had to be taken underground, and this was particularly felt when the *Victoria regia* was grown there. Now a new boiler has been placed at the back, and it is intended to keep the house attractive throughout the year, instead of having it closed for several months, as has hitherto been the custom. *Nymphæas* will receive especial attention, and the roof will be clothed with climbing plants of rich *Ipomæas*.

— NEW GARDENING BOOK.—We hear that, under the title of "The Illustrated Dictionary of Gardening," an elaborate work on gardening is being issued in serial form from 170, Strand, London.

It is in the "popular and convenient form of a dictionary, and will give particulars of, and cultural directions for, all garden plants."

— INTERNATIONAL HEALTH EXHIBITION.—The great interest manifested in the Exhibition is shown by the fact that application has been made by British exhibitors alone for space five times as great as that actually at the disposal of the Executive Council. On the 15th of this month the first goods will be admitted. Information has recently been received that the French Government has appointed a Commission; and Italy—owing in a great measure to the individual exertions of a member of the Executive Council—will, it is hoped, take an active part. A portion of the Educational Section of the Exhibition will be located in the Central Institute of the City of London Technical Guilds, the handsome building in course of erection in the Exhibition Road, which has been kindly placed at the disposal of the Executive Council. The Royal Albert Hall with its musical attractions will now form an integral part of the Exhibition; and the Aquarium, a popular feature of the late Fisheries Exhibition, will continue as an important part of the Health Exhibition. In the Dress Section the most popular exhibit will probably prove to be a series which is being prepared, illustrative of English dress of all ranks of life, from the time of the Conquest to George IV. While the main objects of the Exhibition—which are to impart instruction on the principal sections of the undertaking—have received the fullest attention from the Executive Council, the amusement of the visitors has not been overlooked. The band of the Grenadier Guards, under the able conductorship of Mr. Dan Godfrey, will, as last year, perform each day; and, actuated by the success which attended the visit of the Thuringian Regimental Band to the Fisheries Exhibition, the Executive Council have taken such steps as may, it is hoped, lead to the visit of representative foreign military bands this summer. It is also intended that concerts shall from time to time be given in the Albert Hall. An International Congress on Education will be held, and conferences and lectures will conduce to the elucidation of the subjects of the Exhibition. It is also proposed to have a library and reading room in connection with the Exhibition, which will be open to all visitors, under proper regulations, while the Exhibition is open. The library will consist of books on various subjects comprised in the classification of the Exhibition, both English and foreign. Application has been addressed to foreign and colonial Governments, asking them for copies of reports and statistics on sanitary and educational matters, and a circular is being sent out to authors and publishers requesting them to contribute works of a similar character.

POTTING ORCHIDS.

MANY Orchids decline in health through negligence in potting not perhaps with those who make a special study of them, but in some gardens a very loose system of management is practised. Another system that is more general than supposed, is the removal of a portion of the surface compost and supplying fresh. This is very good when repotting is not needed, but is wrong when the plants are subjected to it annually, as if the cultivator were afraid to disturb his plants. Plants so treated cannot long be expected to remain healthy.

The "letting alone" principle is wrong, and gardeners had better not commence the culture of these plants if the time and attention required in potting cannot be devoted to them. Badly grown sickly specimens do more to discourage the extension of Orchid culture than any other cause. It must be understood that Orchids dislike decomposed material about their roots. If they are to do well they must have sweet compost about their roots, and in order to accomplish this the old material must be removed annually. Any system of potting on the same principle as that followed for Azaleas or Pelargoniums when they require a larger pot is unsuited for these plants, and cannot be too strongly condemned.

Many Orchids while growing require large supplies of water; in fact, *Aerides*, *Phalænopses*, *Vandas*, *Saccolabiums*, *Cypripediums*, *Odontoglossums*, *Cœlogynes*, *Masdevallias*, and others, need it in abundance all the year. Sphagnum moss will not remain in the pots and baskets of these plants in a fresh condition longer than one year, and after that space of time it should be removed. Peat will last longer, but this depends upon its quality. If only the fibre is used it will last for two years, but is then often much decomposed, and, where practicable, I advise annual removal.

In my notes on *Phalænopsis* I detailed how they should be

attended to, but we will consider *Aerides*, *Vandas*, and *Saccolabiums*, all of which will do well either in pots or in baskets. It is not necessary that the plants should be supplied with larger pots or baskets every year the potting has to be performed; they need not be taken out until they require a larger size, which may not at the least be earlier than two years. In the first instance the pots should be thoroughly clean, and then partly filled with drainage, to allow the plant being placed in position, but this matter depends upon the length of the stem and roots. If long, lumps of charcoal and crocks can be carefully laid amongst the roots to within 2 inches of the rim of the pots. In many instances the pots may be filled to this before the plants have to be placed in them. For these Orchids I prefer a mixture of charcoal and crocks. The material used for drainage should be so placed that when the compost is removed annually the small decomposed particles can be washed out through the bottom. After this the remaining portion of the pots should be filled with living sphagnum moss well elevated above the rim. Amongst this may be added a few lumps of charcoal and crocks. Sphagnum moss is better for these plants than a mixture of it and peat. This moss at the end of one year will be sufficiently decomposed for removal, and is readily picked out from amongst the roots without disturbing the plants. The crocks and charcoal intermixed with the moss can also be removed if no roots are clinging to them. After all has been removed, wash out the remaining small particles by pouring tepid water into the pot. This leaves the roots and drainage perfectly clean. The same process may be followed with plants in baskets, only they will not need more than one good layer of crocks or charcoal at the bottom.

Cypripediums appear to flourish even when the material in which they are growing is thoroughly decomposed. But it is not wise to allow them to get into this condition before the compost is renewed. All small or moderate-sized specimens are examined annually, and those in large pans turned out every second or third year. These plants are as difficult to repot without injury to their roots as the majority of Orchids, for they cling tenaciously to the sides of the pots or pans. There is no means of taking them out without breaking the pots and pans, and this we do without regret when they are not of a large size. To obviate this I have of late filled these pans with crocks and charcoal within an inch of the surface, and the plants are in consequence elevated higher than would be the case if a less quantity of drainage was employed. I hope by this system to remove the potting material annually instead of turning them out so frequently. For large plants I use one-third of peat fibre to two-thirds of living sphagnum moss. I prefer charcoal and crocks mixed with this, only the roots cling so freely and fast to them that they are dispensed with because they render the removal of the compost more difficult. Some varieties do well in loam, but from the quantity of water required I do not care to use it. If it is used it is laid near the surface so that it can be readily removed when the fibre is decomposed. I have applied cow manure in a dry state under the surfacing of moss, but prefer giving stimulants in the form of liquid manure while the plants are growing if required. Small bones are good for these plants, and I am informed that limestone chippings mixed with the compost is valuable for some species, including that distinct and beautiful variety *C. Spicerianum*.

From *Dendrobiums* the entire compost is not removed annually, only the surface being freshened; but every second year, where practicable, the whole is removed. This is rather a difficult operation when the plants are growing in baskets, for the roots of many species appear to fully occupy every particle of material when they are strong. With care a good portion can, however, be removed, and I have found free-growing *Dendrobies* not so much injured by a few roots being broken as is the case with many Orchids, but the fewer roots broken the better. These plants do well in either pots or baskets. When growing in pots two-thirds of peat fibre to one of moss, with lumps of charcoal freely intermixed, and a little coarse sand is used for the compost; but when growing in baskets the moss is allowed to predominate, and small crocks mixed with it in preference to the charcoal. When these plants require new or larger baskets, which they will do in two or three years, and this opportunity must be seized for washing and picking away the whole of the old material from the roots.

Cattleyas and *Lælias* are the most difficult Orchids to deal with in respect to potting, and they appear to suffer more than any other Orchids by the slightest injury to their roots. The peat and moss employed for these plants will last much longer in good condition, because they do not require so much water during the winter and spring months—in fact, in no period of their growth, as is the case with many Orchids. Imported

plants are best potted in crocks only until they are throwing out fresh roots, when peat and moss may be added. Established plants are only disturbed every second or third year, generally the former, and if larger pots are required a shift is given them, so as to keep if possible their roots in the compost and pots or pans, whichever may be used; the latter are preferable. The pots in which established plants have been growing must be broken, for the roots of the plants if healthy are sure to be found clinging to the sides. The portions of the pot to which the roots adhere should be placed into the new pots without being disturbed. The old peat and moss must be removed, and fresh worked most carefully amongst the roots without breaking them. There is a variety of opinions about the best time to repot these plants. I am no advocate for allowing them to commence making fresh roots before the operation is performed, the majority of our plants being potted just as they commence growth and before they form roots. I am not sure, however, where the watering is done carefully and judiciously, if this is not best done even before they commence growth. I have been subjecting a plant of *C. Mossiae* to this treatment, and it has flourished well. Three years ago when obtained it was just maturing a small-flowering pseudo-bulb. The flower was removed, and the following season a strong-flowering pseudo-bulb was made, and a stronger still the following season. Last spring the one produced two strong growths, each now carrying flowering sheaths. Two of the back eyes have started, and are likely to make strong pseudo-bulbs, so that the plant has now four leads, and until this season only in a 5-inch pot. I am testing this matter on a larger scale this year.

Oncidiums, *Masdevallias*, *Odontoglossums*, and others are repotted annually, removing every portion of the compost given them the previous year. For the last two mentioned scarcely too much moss can be used, for they appear to root more freely amongst it than they do in peat, and this year I intend trying a number in living moss only. It is important when potting is done that the plants be well elevated above the rim of the pots, for experience proves to me that the higher they can be raised with safety the better they will flourish. It will be found in the cultivation of those mentioned last that they root much more freely near the surface than they do at any depth below, neither will the roots that descend be found when turned out in the same healthy condition as those in the compost above the rim of the pots. This is not the case when the roots ramble freely amongst the crocks and charcoal used for drainage, but when a good depth of compost is used below the rim of the pots. I have been turning out a number lately, and all that have the least depth of moss and peat below the surface are all the best rooted plants, and have made the strongest growths. These plants are not of strong-rooting habit, and do not therefore require large pots or any great depth of material to root in. After potting I have found the plants to do better when elevated upon small pots, or anything else used as a substitute, than they do when standing directly upon the gravel or other material of which the bed may be composed. I do not care to stand them upon wood trellis-work unless it can be arranged close over shallow tanks of water, for the plants and their surroundings become dry too rapidly during bright weather when air has to be given abundantly. If elevated only 1 or 2 inches above the material forming the bed it is ample, and allows superfluous water to pass away and air to circulate freely amongst the plants.—W. BARDNEY.

OLD PRIMULA PLANTS.

WHEN their season ends and other more showy flowers appear it is often thought that old *Primulas* are not worth keeping for another winter, but plants which have produced blooms of the finest form and colour are valuable. In the best selected strains we find the flowers vary in size and colour, and as the true variety may not always be easily obtained or preserved, they have often to do service for at least two and sometimes three years. Many of our one-year-old *Primulas* are grown in 4-inch pots, and when one season is over in these they are transferred to 6-inch pots. They generally advance well, and by the second autumn they are much finer plants than they were before. Those in 6-inch pots are sometimes placed in a larger size, and others are only turned out of the pots, the ball reduced, and again potted in the same size. I am sure if many cultivators would try these ways of dealing with the best of their old *Primulas*, they would find them as good or possibly better than any of the young plants they could raise from seed. Potting may be done at any time, from now until May; and the cold frame treatment, which suit seedling *Primulas* in summer, will be found to agree equally well with the old plants.—M. M.

KEEPING RABBITS FROM A GARDEN.—I see a correspondent in the *Journal*, March 13th, seeks information in keeping rabbits out of his garden. No one is more troubled with rabbits than I have been, as I am situated in the middle of a wood; and just outside the garden boundary

there is a rabbit burrow with sixteen holes. I have seen them jump over our wire fence 4 feet 6 inches in height, and have had to add another foot of wire to bend over. Still they get in while the carriage gate is open. After trying several experiments we have just found a remedy. I obtained some old wool and petroleum. A little petroleum is placed in a pan and the wool rubbed round it so as to carry the smell, and it is then laid round a few plants which they visit. They will not come anywhere near it. Since using the above I have only seen one rabbit, and that I shot. I believe they can smell it outside the garden. We have a dog by the side of the house, and a small path 5 feet wide leading from the wood, and have proved that rabbits come very near to the dog at night by laying sand across the path, which show that they are very daring in their hunger.—R. C.

VINE ROOTS—MANURING VINES.

I AGREE with what is said on page 442 that artificial manures will not attract Vine roots "through a mass of soil 1 foot or 2 feet thick," but I go further and say no manure of any kind will do that. I have, however, a vine in which the roots of the Vines have been attracted to the surface of the border solely by means of Standen's manure, which has been applied every year for about seven years. Above the manure was spread loam sometimes, and sometimes it was only slightly forked in, and a light mulching of leaf soil was always put on above all, but only about 3 inches, and that was always swept off again at the next dressing. Once, two years ago, cow dung was applied as well as Standen's, but the roots were plentiful then. It is essential to keep the surface moist with top-dressings, otherwise rooting will not go on, but any appropriate Vine manure will induce fibrous roots under such conditions. Our Vines in pots were never manured with anything but Standen's manure, and the abundance of fibrous roots produced by it first determined us to apply it regularly to the borders as a surface dressing. I notice wood ashes are recommended with loam to be applied at first to produce fibrous roots, which "will then form readily, and a million mouths be provided for, appropriating the food that may afterwards be given." Chemists describe wood ashes as an excellent artificial fertiliser, and it has been proved to be particularly serviceable to the Vine, containing, as it does, Vine food in a concentrated form.—CASUAL.

NEW PLANTS AT REGENT'S PARK.

A LARGE number of new plants was as usual shown at the Royal Botanic Society's first spring Show last week, some being especially meritorious. Several of those certificated have been previously honoured at Kensington and described in the reports of the meetings. The following were thus twice honoured—namely, *Adiantum rhodophyllum*, *Dieffenbachia Jenmani*, *Hyacinth Harlequin*, and *Amaryllis* Mrs. Shirley Hibberd, Col. Burnaby, and Sir Redvers Buller from Messrs. Veitch & Sons, Chelsea; *Odontoglossum macrospilum* from Mr. B. S. Williams, Upper Holloway; *Cattleya Trianae* Leeana, *Odontoglossum Oerstedti*, and *Masdevallia Schlimi* from W. Lee, Esq., Downside, Dorking. In addition to these the following were certificated—

Masdevallia Chelsoni (Veitch and W. Lee, Esq.).—A showy form, somewhat suggestive of *M. Veitchiana* in colouring—a kind of shining orange-red; but the flower is smaller and without that peculiar violet gloss which renders *M. Veitchiana* so beautiful. It is free, and apparently of sturdy growth.

Azalea La Merveilleuse (Veitch).—A magnificent single variety of the *A. indica* type, with finely formed intensely rich crimson flowers, 3 inches across; the petals rounded, broad, and of great substance. The plant is sturdy and compact in habit and very free.

Hyacinth Minerva (Veitch).—A double variety; the bells very full and well formed, of a peculiar salmon colour tinted with rose.

Hyacinth Lord Derby Improved (Veitch).—The single light blue *Hyacinth Lord Derby* is well known, and of this the variety now noticed is an improved form with larger more massive spikes and bells. A very handsome form.

Amaryllis Madonna (Veitch).—Flowers with broad rounded petals, charmingly veined and streaked with crimson upon a white ground. Very delicate and chaste. The plant shown had two spikes with two flowers each.

Muscari concinnum (Douglas).—A charming *Grape Hyacinth*, somewhat of the *M. botryoides* type, with compact spikes of large bright blue bells. Very free and dwarf; pretty in pots as shown by Mr. Douglas.

Cypripedium Druryi (Williams).—A small-flowered but distinct species; the sepals and petals yellowish with a green tinge, each having a median maroon stripe, which is very strongly marked in the dorsal sepal. The lip is buff yellow.

Adiantum strictum (Williams).—One of the *A. cuneatum* type with small pinnules, and having closely set erect fronds, from which character the name is derived.

Odontoglossum Wilckeanum Littlei (Little).—A beautiful variety, a really fine *O. Wilckeanum*; the ground colour pale yellow, heavily spotted with chocolate on the sepals and smaller dots on the petals.

Cyclamen Dame Blanche (H. B. Smith).—Remarkable for the great substance of the flowers, which are about 2 inches long; the petals being an inch broad, pure white, and of neat form.

Cyclamen Purity (Little).—Very free; the flowers pure white, but only of moderate size.

Cyclamen Rose Gem (Little).—Exceedingly free. A bright rosy self flower of good form and produced in great numbers. Most valuable for decoration.

Cineraria Prince of Wales (James).—A large, handsome, rosy crimson self. Flowers 2 inches in diameter and very rich in colour.

Cineraria Venus (James).—A rich crimson-maroon self, with broad petals of fine substance and velvety gloss.

Cineraria Sir F. Roberts (James).—A magnificent variety, crimson-purple; the flowers 2½ inches in diameter, of wonderful substance.

Cineraria Mrs. Arden (James).—Very large and showy; flower rosy crimson with a white ring in the centre.

Cineraria Lottie Williamson (James).—Distinct in colouring, the body colour being a rich purple-maroon, with a bright rose central ring. The flower is smooth and of good substance.

Auricula Sir W. Hewett (Douglas).—A maroon self Show variety with large blooms, six in a truss. The colour is extremely rich, but the paste is narrow though well defined.

Auricula General Gordon (Douglas).—A white-edge Show variety, with deep purple body colour, even edge and paste; the flower generally neat. Truss large and strong.

Auricula Mrs. Moore (Douglas).—A green-edge variety. Flowers large, black body colour, small paste, but even and well defined.

IMPNEY,

THE SEAT OF JOHN CORBETT, ESQ., M.P.

THE name of Impney has of late become somewhat familiar to readers of garden literature, inasmuch as the gardener there was appointed as the successor of the late lamented Mr. Thomas Speed at Chatsworth. This implies that Mr. Corbett's gardens possess some features of interest, and that their condition is worthy of note. Both propositions are well founded. In one important respect Impney is more than interesting, it is wonderful; and as to the keeping of the grounds and gardens, it was not until they had undergone a searching inspection by the representative of the Duke of Devonshire that Mr. Owen Thomas was offered the opportunity of filling the position on which he entered a fortnight ago; and this, it may be mentioned here on precisely the same terms, and invested with exactly the same authority as his predecessor. But to Impney.

It is no old baronial estate of historical note, with a venerable mansion hoary and worn with the lapse of centuries. The owner of the estate is not, to coin a term, an inheritor of history, but a maker of it. Impney is indeed a splendid memorial of nineteenth-century commercial progress and success, and in this respect has few equals in this country. "Diligence in business" has in the remarkable career of Mr. Corbett brought a striking reward, and the "salt of the earth" has literally proved its virtues in a manner that is quite extraordinary.

A stranger arriving in Droitwich and asking what is the staple trade of the town, would receive in reply, "Salt, all salt." The quaint old town, though not indicating the fact by its whiteness, rests on salt, lives by salt, and is, in fact, sinking into salt, not a few of the houses appearing to the stranger as dangerously likely to be "cured." There are tall black chimneys all over the town, and at the base of them furnaces for boiling the brine and converting into salt. The brine is pumped up year after year by powerful steam pumps from wells sunk from 300 to 1000 feet deep, dissolving and wearing the salt rocks till hills have become hollows, and the sinking and slanting houses appearing as if putting their heads together, like certain old fogies who do not rejoice in the "bit of blue." The inhabitants, however, appear to be contented, and the town prosperous, the celebrity of its brine baths attracting thousands of sufferers from all parts of the British Isles, as well as the continent and America, every year. The town is so crowded with bathers suffering from rheumatic gout, sciatica, nervous debility, and other diseases of the nerves, that it is often difficult to lodge them all, and the cures effected are often marvellous. It is at the Stoke Works, however, about three miles from Droitwich, that the magnitude of the salt industry is the most apparent. Here there are some sixty or seventy tall shafts, and from two to three thousand persons are dependent for their livelihood on this great establishment. Those works belong to Mr. Corbett. By his own industry and remarkable business aptitude he reared them, and, as if this was not enough, he made Impney what it is to-day.

Some fourteen or fifteen years ago he purchased a large tract of land, a purely agricultural district, somewhat boldly undulated. The land that consisted of ploughed fields then is a beautiful park now, well furnished with trees, and beautified with water, while a herd of deer fatten on the rich herbage of the fertile soil. The mansion, which is beautifully situated, and commands extensive, diversified, and picturesque views, is in the French style. It is a most imposing pile, the material (hand-smoothed bricks, with stone facings) and workmanship being of the best possible character; and the architectural embellishments singularly rich. It is estimated that £100,000 was expended in its erection alone. The roof of the hall or vestibule is supported by massive and solid pillars of marble, everything being in keeping; and valuable paintings of the old masters Titian, Rembrandt, Vandyke, and others adorn the walls.

On the south side of the mansion are spacious terrace gardens with flower beds in panels, an elaborate fountain, and splendid specimen Hollies, Cupressus Lawsoniana erecta viridis, Golden Yews, and Retinosporas appropriately placed on the lawn. The walks, which are wide, are made of asphalt, the kind known as *Val de Travers*, and are level, durable, pleasant to walk on, and not dingy in appearance. The view from the terrace is particularly fine, embracing water, bridges, trees, a far-reaching pastoral valley, and, beyond, the Malvern Hills. A striking feature, and a most useful one, is a remarkable densely tree-clad hill or small mountain, which rises a few hundred yards from the mansion and completely masks the town of Droitwich. Round the base of this eminence a wide stream rushes along its tortuous course, and has afforded an opportunity for forming cascades. These have been admirably contrived and executed, and they contribute powerfully to the beauty of a beautiful place. Passing along under the arcades of Willows the "music of the waters" is almost deafening, while the wild flowers on the steep hillside are scattered in profusion. The mound is ascended by long curving flights of rugged steps, and the wooded hill is intersected by serpentine walks quite canopied with foliage during the summer months. The extent of

this picturesque eminence is about thirty acres, and it is undoubtedly one of the principal charms of Impney. It was from a position on the hill that the photograph was taken from which the engraving has been prepared. It is one of a series of several others which have been successfully executed by the London Stereoscopic Company, and affords an idea of the attractiveness of the surroundings of the mansion. No expense has been spared in rendering Impney what it is. The leading landscape gardeners have been employed from time to time, and Mr. Owen Thomas was busily occupied during most of the time he was at Impney carrying out important improvements suggested by himself or Mr. Corbett, and has left the marks of a master hand behind him.

The gardens are a short distance, nearly a quarter of a mile, from the mansion, and from which they are partially hidden by the configuration of the ground and shrubberies. The work of tree and shrub-planting has been conducted on a scale of no small magnitude, as may be imagined when it is estimated that shrubs and trees of the value of £10,000 have been planted since the work commenced, many of the first planted having died; but there have been few failures lately, as both trees and shrubs are established and in a healthy flourishing state. As an instance of success in transplanting, a number of large specimen Lime trees were purchased in Surrey last May, the trees being forthwith removed, although bursting into leaf. At least some of them were expected to fail; but by careful packing, immersion in the lake for a few days after their arrival, and subsequent care every one has grown satisfactorily.

The kitchen gardens are not extensive, between two and three acres being enclosed between lofty walls, which are covered from base to summit with healthy fruit trees, although these have only been planted about six years. Similarly fine are the pyramid trees in the garden. Considering their age, finer, cleaner, and more fruitful examples have never been seen. No moss, no canker, but clean bright wood everywhere, and the varieties are as choice as the trees are excellent. These trees were planted by Mr. M. Temple, now of Carronbridge, and Mr. Thomas gives him ungrudgingly the praise he so well deserves for the excellence of his work. The soil around Droitwich being impregnated with salt was found by its effect on Vines not to be depended on for fruit culture, hence turfy loam was imported from some distance, and the wisdom of the step is now apparent.

Erected against the south wall of the kitchen garden is a range of glass structures such as is not seen every day. It was erected by Messrs. Clark & Hope, of Birmingham, at a cost of £3000. For strength, lightness, and durability these houses could not be surpassed. There is no wood employed, the framework and doors being of iron and the woodwork of brass. The range is in nine divisions—namely, two Peach houses about 50 feet long, lean-to's; three splendid lofty vineries with hipped roofs to the north, the rafters facing south being apparently over 20 feet long; two span-roofed plant houses about 32 feet long, at right angles with the others; a Fig house 20 feet, and a small octagonal fernery in the centre of the range. Nothing more clean, orderly, and satisfactory than this range and its contents could well be imagined. Peach trees in the best of health and bearing the best of crops, Vines starting strong and freely, those in the early houses showing bunches plentifully, the retention of young wood, not rigid spur-pruning, being the system relied on for the production of Grapes.

Plants of all kinds were as healthy as the fruit crops were promising, *Cinerarias* especially being noteworthy by their vigour and the excellence of the varieties. Messrs. F. & A. Dickson of Chester, who supplied the seed, evidently possess an excellent strain of these effective spring flowers. Standard *Maréchal Niel* Roses were showing buds freely preparatory to forming golden heads of flowers. Standard *Heliotropes* were in preparation, and these in due time will find many admirers. In the cool stove *Abutilon Sellowianum marmoratum* showed to great advantage associated with dark-foliaged *Dracaenas*, while Palms and other foliage plants were in the best of health.

Outside the garden and in what might be termed the frame ground is a range of extremely useful pits about 250 feet long. They are low narrow serviceable structures with a path down the centre and beds on each side, everything on them and suspended from the roof being within easy reach of the cultivator. Such cheap, handy, serviceable structures ought to be more frequently seen, as they are so useful for a variety of purposes, and so profitable. Plants of various kinds are raised in the range under notice. Kidney Beans, Strawberries, and Asparagus forced, Melons and Cucumbers produced in abundance, Davenham Early Melon being highly esteemed for its precocity and good quality, while in three of the divisions Pines are grown well, dwarf stubby-leaved plants in 8 and 9-inch pots, showing fruits that will be considerably larger than on hundreds of plants that occupy twice the space. This is the Drumlanrig system of Pine culture—small plants and large fruits which reflect so much credit on the cultivators.

On the south side of the kitchen garden at Impney, outside the walls, is an extremely enjoyable rosery. The Roses are planted in beds, dwarf plants with long strong shoots pegged flat to the ground instead of shortening them. That is the way to produce Roses that can be cut by the basketful for decorative purposes, and fine blooms into the bargain. The Rose buds are relieved by choice shrubs, and thus the enclosure has a furnished appearance in the winter. The west outside screen is occupied with a series of buds of herbaceous plants for affording flowers for cutting, the beds being sheltered by a contiguous row of flourishing *Wellingtonias*. There is also a garden of Alpine plants, but rockeries are wanting to show them to advantage. These will no doubt be supplied in due time, for nothing is denied to complete whatever is taken in hand in these admirable and excellently kept gardens.

Adjoining the mansion is a small conservatory attractively furnished, the fine-foliaged plants, such as Palms, also Camellias, being remarkable for the richness and gloss of their deep green leaves; while the Tree Ferns are growing with extraordinary vigour. This is due in a great measure to encasing their stems with peat covered with moss, and giving them now and then a solution of Clay's fertiliser, for which they well repay by their exuberant fronds. In reference to the glass structures and their contents it would not be just to ignore the good work of the foreman in charge, Mr. W. Saw, who is well educated, intelligent, and industrious—qualities that should be possessed by all young men who aspire to good positions in the gardening world.

Gardening, however well conducted at Impney, is only a small part of the gardener's duties, outside improvements and the general management of the home estate devolving upon the gardener. That Mr. Thomas was equal to all his duties is beyond a doubt, and Mr. Corbett afforded him the best possible testimony of his worth; he also presented Mrs. Thomas with a splendid gold watch as a graceful tribute of respect to herself and

to its rather delicate constitution, which under the best management often causes it to be badly attacked by mildew, which weakens the plant and renders it more liable to be attacked another season, until at last it dies. The application of sulphur in one or other of its various forms is the best remedy for this pest, at the same time keeping the plant in a healthy growing condition, the house dry and well ventilated, but avoiding all cold draughts and extremes of temperature.

Prevention is always better than cure, and the more vigorously and hardy the plant can be grown the less likely will it be to fall a prey to mildew or any other disease. The system of culture pursued here has been before alluded to in these pages, and certainly deserves to be widely known, as it gives us an abundant supply of the finest flowers possible year after year.

The tree is planted in the centre of a narrow border about 3 feet wide, and running the whole length of the house, but doubtless its roots have rambed far beyond the bounds allotted to them. The house is 28 feet long by 12½ feet wide, and is quite cool, no fire heat being used. A main

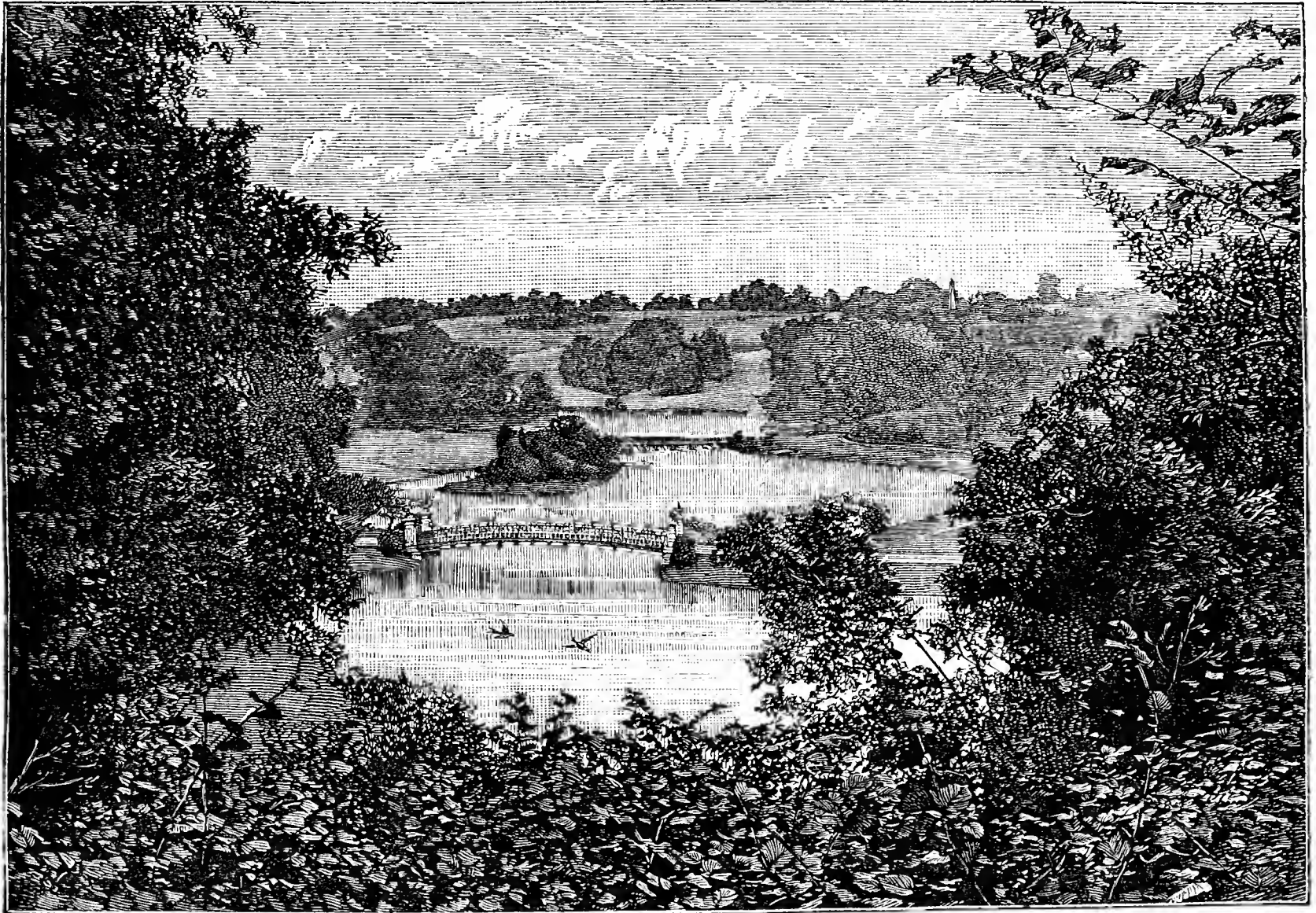


FIG. 63.—IMPNEY.

her husband. The *employés* on the home estate also gave practical evidence of the esteem in which they held their chief who, though a strict disciplinarian, is uniformly considerate and courteous to all, by presenting him with a handsome walnut writing cabinet and inkstand, accompanied with an appropriate letter asking his acceptance of their offering.

As Impney has had a good gardener in the past there cannot be a doubt that a good one is provided for the future in Mr. Richard Parker, for no one could remain in such a place as Hutton Hall, and under such a master of the art of cultivation as Mr. McIndoe, without being fully competent, and the elected from 400 applicants is congratulated on his appointment to what was—and there is no wonder that it should be so—a much-coveted charge.

Besides keeping his estate in such perfect order, Mr. Corbett is a benefactor to the town of Droitwich, which he represents in Parliament, and the district surrounding. Everything that is worthy has his countenance and support, and the public buildings he has erected, both as regards their use and ornament, reflect the practical mind, the good taste, and the generosity of the affluent owner of Impney.—J. WRIGHT.

THE MARÉCHAL "NIEL" ROSE.

THIS has become such a general favourite with all classes within the last few years that almost everyone attempts its cultivation, and yet it is very seldom we see a vigorous plant of it. This is, perhaps, partly due

branch extends horizontally on each side of the plant to the end of the house; wires 1½ foot apart are carried from this to the top of the house, and on each of these three young shoots are trained each year, as we cut the old ones down to within three eyes as soon as they have done flowering, and train the three best shoots up again for the following year's crop of flowers.

Two branches from this plant also extend horizontally into an adjoining house, a length of 28 feet. In 1883 we commenced cutting April 20th, and continued until the second week in June, cutting in all 115 dozen of handsome blooms. All the pruning required in the spring is merely to take off the unripe points of the shoots before the buds start for flowering. These shoots are often over 16 feet long and of proportionate thickness.—W. H. DIVERS, *Burghley*.

ORCHID NOTES.

CUTTING DOWN DENDROBIUMS.—Will your correspondent, "B.," kindly excuse me asking him for more precise particulars regarding his practice in this matter? as I am interested in it myself, and perhaps "B." is aware the practice is one which has been much disputed of late. First, How many years in succession has "B." cut away the flowering pseudo-bulbs from any one of his plants, and have the annual growths (pseudo-bulbs) grown stronger, or weaker, or maintained their vigour since under the treatment? May I press

your correspondent for an accurate reply to this, for which I shall feel obliged to him? I am inclined to think he is right, but his note this week is not very clear to me.

Second, he speaks of "the young growths starting from the base of the old pseudo-bulbs that had been taken away," whereas, in a regular way, the young growths of *D. nobile* do not proceed from the base of the flowering pseudo-bulbs at all, but from the base of the last year's pseudo-bulbs. It is the two-year-old pseudo-bulbs that flower, hence there must of necessity be always two years' pseudo-bulbs left on the plant till blooming is over. For example, "B.'s" plants should now be carrying their last year's growths, which will flower twelve months hence, and the young growths will be pushing from the base of these, not from the cut-away flowering pseudo-bulbs.—J. S.

ODONTOGLOSSUM EDWARDI.—Numerous as are the species and varieties of the *Odontoglossum* now in cultivation, the subject of the present note is eminently deserving of attention, as it is one of the most distinct of the whole genus, and possesses special attractions of colour to recommend it. A plant is flowering at Kew which shows its characters to the best advantage, having two strong spikes, one with nine branches bearing eighty-three flowers and buds, the height 3 or 4 feet. The flowers are about an inch in diameter, with narrow sepals and petals undulated, and with the points recurved. The colour is a uniform purplish mauve with a tinge of violet quite distinct from any other *Odontoglossum* and from the majority of Orchids, except some of the *Bollea* type. In contrast with *O. Pescatorei* and *O. Alexandræ* it is most striking, and as it succeeds well in a cool house with those species it is particularly valuable. The plant has been grown at Kew for some years, but was first imported in quantity six years ago, though it still continues scarce.

ODONTOGLOSSUM ELEGANS.—A beautiful Orchid, remarkably like a large and dark-coloured *O. cirrhosum*, but with the petals less waved and broader than the majority of forms of that species. The spots are very large, almost covering the sepals, a little smaller on the petals, but equally dark. It produces a graceful spike, and is of robust habit when grown as Mr. Pollett has it at Bickley.

CATTLEYA TRIANA LEEANA.—High prices for Orchids are by no means uncommon now, but it is seldom that 250 guineas is given for a single plant. Yet this is the price paid by Mr. W. Lee, Downside, Leatherhead, for the superb *Cattleya* which bears his name, and for which certificates were granted last week by the Royal Horticultural and the Royal Botanic Societies. Numerous varieties of *C. Trianae* have been introduced to cultivation in recent years, some having originated in this country, but the majority are imported plants. These present considerable difficulties in the size and colouring of the flowers, but there is no question that they are all surpassed by Mr. Lee's magnificent variety. The plant is a fine one, growing upon a large block of wood and having about thirty pseudo-bulbs, rather tall and somewhat cylindrical. The flowers are 7 to 8 inches in diameter, the petals 3 inches across, pale mauve-purple, the petals being of similar colour but more narrow. The lip is of wonderful size, fully 4 inches long and 3 or more in breadth, of a most intensely rich magenta-crimson colour extending far into the throat. This plant is the only specimen of the variety in cultivation, and it is not at all likely to be excelled by new importations.

THE DAFFODIL CONFERENCE AT SOUTH KENSINGTON.

APRIL 1ST.

SUCCESS in an unqualified degree attended the efforts of the Royal Horticultural Society to obtain a thoroughly representative exhibition of Daffodils in all their numerous forms, for never before have so many flowers of the charming genus *Narcissus* been brought together. The idea was an excellent one, seasonable and novel, and proved most conclusively how much can be effected by pure enthusiasm without the offer of tempting prizes to induce exhibitors to contribute on such an occasion. Based on the same lines as the Apple Congress last year, though necessarily on a much less extensive scale, it was an equally good representative and non-competitive exhibition, the success of which may be confidently expected to lead to other schemes of a similar character.

The conservatory contained a vast array of golden, creamy, and pure white flowers, in all their variations, from the gigantic Trumpet Daffodils *Empress* and *maximus* to the diminutive minor and *minimus*, the delicately tinted "Peerless" varieties and hybrids, and the lovely wax-like *Poet's* *Narciss*, while the air was laden with the perfume of a thousand *Campanulæ* and *Jonquils*. Every gradation was there, and an unbroken chain of changing forms and colours could have been formed from the material afforded by the numerous collections. To enumerate the varieties would fill a volume, and, after all, verbal descriptions of such flowers, as Mr. Baker subsequently stated, would not convey an adequate idea of their characters. A few notes of the most distinct may, however, be desirable. By far the finest collection in every respect was that from Mr. James Walker of Whitton, Middlesex, the flowers being of great size, remarkably fresh, brightly coloured, or purely white, and indicating that their culture is well understood. They were also very tastefully set up in Hyacinth glasses, a dozen or more flowers being placed in each, and the base of the stalks surrounded with moss. A great number of beautiful varieties and hybrids were included, the *N. incomparabilis* forms

being especially abundant and handsome. Of these the following were noteworthy:—*pallidus* *Princess Mary* of Cambridge, pale yellow petals, and a wide rich orange crown; *albus* *Milneri*, broad creamy white petals, crown wide, rich orange fading to yellow at the base; *Minnie Hume*, broad pure white petals, clear yellow open crown; *albus ruber aurantius*, petals white, crown an intensely rich orange. The double form *albus aurantius plenus* was admirably shown, the flowers large, pure white, and orange. Of other notable varieties near these the best were *Leedsii amabilis*, with white spreading petals and straight faint creamy-yellow crown; *Nelsoni major*, petals white, with a straight orange-yellow crown, deeper towards the edge; and *cernuus pulcher*, with white petals, and very long pale yellow crown. *N. odoratus*, *N. Jonquilla*, and *N. Tazetta* were in large numbers and fine condition. *N. Pseudo-Narcissus* and its varieties formed another important portion of the collection; *bicolor anceps*, the golden *spurius*, the rich and large *maximus*, *Emperor*, *Horsefieldi*, and scores of others being grand in every respect. *N. poeticus*, with its varieties *ornatus* and *tripodalis*, and the nearly allied *N. Burbidgei* formed another charming group, while the *Hoop Petticoat* *Narciss* was freely employed amongst the others with excellent effect.

Messrs. Barr & Son, King Street, Covent Garden, contributed a most extensive collection of flowers, comprising some hundreds of choice varieties and hybrids. All the sections were exhibited in due proportions, a grand group of the Trumpet Daffodils at one end presenting a series of beautiful shades of gold and orange, the handsome crowns being contrasted in the case of the *bicolor* forms with pure white petals. Large clusters of fine double Daffodils imparted an additional interest to this portion of the exhibit. The forms of *N. incomparabilis* were shown in scores, some being extremely pretty, with the *Leedsii* and *Barri* groups. Very noteworthy was *N. incomparabilis aureo-lineatus*, with a rich orange crown of wonderful colour; another was *concolor*, with clear yellow petals and pale orange crown, very delicate. *Leedsii galanthiflorus aurantius* is a charming *Narciss*, with pure white petals and a deep orange-yellow crown. *Leedsii amabilis* with pale creamy flowers, and *Barri conspicuus* has broad well-proportioned petals and crown tipped with orange scarlet, one of the most distinct and handsome of all. *N. incomparabilis* *Queen Sophia* of the Netherlands is also a very striking variety with broad rounded petals and an extremely rich gold crown. Amongst the *N. cernuus* family a variety called *Rebecca Syme*, or the Violet-scented Daffodil, is remarkable for its sweet delicate odour, the flowers being of a pale lemon colour. *N. odoratus rugulosus* is a pretty single form of the *Campanelle*, with which were shown numbers of *N. odoratus minor plenus*, *Queen Anne's* double Daffodil, very neat in form, full, and of a rich golden hue. *N. poeticus* was represented by some superb varieties, *poetarum* having the deepest coloured crown; while of the allied *N. Burbidgei* two handsome variations were shown, named respectively *expansus* and *grandiflorus*, the former having a very broad beautiful crown, and the latter distinguished by its unusually large flowers. *N. Bulbocodium* contributed to the interest of the group, the early small-flowered pale variety *nivalis* being noteworthy, together with the charming little *Corbularia Graelsii*, the petals of which are inconspicuous and greenish, the crown pale gold and very large. These are but few of many excellent Daffodils shown by Mr. Barr, for in number of distinct forms this was the most complete of all those present. In the central portion of the collection the bottles containing the flowers were concealed beneath a bank of moss, amongst which were also dispersed a few plants of *Isolepis gracilis*, *Aralias*, and *Ivy*. This had a much more pleasing appearance than the usual formal style of setting up these flowers, and might be advantageously imitated on a more extensive scale. It should be added that a most welcome glow of distinct colouring was furnished by a collection of the brilliant *Auemone fulgens* from Mr. Barr at one end of the conservatory.

From Mrs. Vivian's garden at Singleton, Swansea, a collection of miscellaneous Daffodils was sent, and Mr. J. T. D. Llewelyn contributed some wild Daffodils gathered in the woods near Swansea, amongst which were examples of the Tenby Daffodil, *N. obvallaris*, a neat-flowered early variety, together with a general collection of garden flowers, *N. bicolor* *Horsefieldi* being wonderfully fine. Mr. W. Brockbank, Didsbury, Manchester, sent some flowers of the Tenby Daffodil, found wild in Pembrokeshire, some pretty forms of *N. cernuus*. Mr. F. W. Wilson, Weybridge, contributed some choice blooms of *N. Pseudo-Narcissus*, *N. incomparabilis*, *N. Tazetta*, and some pretty *Jonquils*. Mr. J. Fitt, gardener to the Earl of Essex, Cassiobury, Essex, sent a collection of double and single Daffodils; and New Plant and Bulb Company, Colchester, had a good general collection.

Messrs. J. Veitch & Sons, Chelsea, had an extensive collection, the flowers arranged in boxes of moss, a number of flowers of a few leading varieties being shown. *N. poeticus*, *N. bicolor* *Horsefieldi*, *N. Telemonius plenus*, *N. cernuus pulcher*, *N. rugulosus*, *N. incomparabilis* *Leedsii expansus*, *N. odoratus* and *minor plenus*, *N. spurius*, and *N. incomparabilis sulphureus plenus*, which was especially handsome. From the Society's garden at Chiswick a number of select varieties were contributed, and Mr. T. S. Ware, Tottenham, had a handsome collection of the best forms, representing all sections. Mr. R. Frisby, gardener to M. H. Farrington, Worden Hall, Preston, sent some flowers of the wild double *N. Pseudo-Narcissus*. Capt. C. G. Nelson, Holme Lodge, Godalming; Mr. E. G. Loder, Floore Weedon, Northamptonshire; Mr. H. J. Elwes, Preston House, Cirencester; and Mr. F. W. Moore, Curator, Glasnevin Botanic Gardens, also sent small collections of flowers, including some choice varieties. Some particularly handsome bouquets of Daffodils and Ferns were exhibited by Messrs. Dickson of Covent Garden, R. Morgan of South Kensington, and Aldous of Gloucester Road, all of which were greatly admired by the visitors; but a group which attracted much the largest attention was a tasteful free arrangement of Daffodils with shoots of hardy shrubs from Miss Jekyll, Munstead, Godalming. Only a few of the boldest and most distinct varieties were employed, but so gracefully were they associated with the foliage that their appearance was most pleasing.

Mr. E. H. Krelage, Haarlem, showed some spikes of *Hyacinth* *Charles Dickens*, one half red and the other blue, showing the reversion of the red sport to the original blue variety. Flowers of *Scilla italica alba* and *Chionodoxa nana* were also sent. Mr. Davidson, Iwerne Minster, Shaftesbury, sent flowers of seedling *Imantophyllums*, very fine, and several large heads of *Rhododendrons* were sent from Singleton.

A great number of Fellows of the Society and visitors assembled durin

the morning, and when the Conference was opened the conservatory was crowded. Professor Foster took the chair at 1 P.M., and, after a few introductory remarks, called upon Mr. Burbidge to deliver the lecture, which had been previously announced, and of which the text will be found on page 260. It was read in a clear and pleasing manner, and was listened to very attentively by the large audience, who cheered the lecturer heartily at its conclusion.

At the conclusion of Mr. Burbidge's lecture the Chairman made a few complimentary remarks as to the completeness and excellence of the discourse, and then called upon Mr. Shirley Hibberd, who gave the following observations:—

Mr. Baker's classification of Narcissi comprises three groups, ordered as to the relative length of the crown, and twenty species, a few of which are certainly in the nature of accommodations, while others have but a frail tenure. As a system of classification it is undoubtedly the best we have, and the only one that is now worth serious consideration; but its weak points are strong for the purpose of instruction, and the hypothetical hybridiser would make ruin even out of many of the species. This hypothetical hybridiser we are bound to keep in view, for he is the practical critic when we enter upon the consideration of the origin of species, and is likely to tell us more about it than we ever dreamt of in our philosophical philosophy. Mr. Darwin recognised the aims of the florists as tending to the solution of biological problems; but many of his disciples are simply shocked at his largeness of view, and put their own personal vanity in the place of facts that have been established by workers in the garden. Within a few years we have witnessed the impress of the florist's hand in the world of Daffodils; and Mr. Backhouse, Mr. Leeds, Mr. Nelson, and other hybridisers, animated by the high floral inspiration that creates in it desires, have given us new races, new varieties, new forms, new colours in the newer population of the world of Daffodils. Their success most certainly marks their recognition of specific distinctions. For the purposes of the hybridist the determination of minute distinctions is waste of time, and the marriage of consanguinities as great a violation of biological as of conventional propriety. He requires distinctive types—marriageable certainly, but differing as widely as possible in complexion and feature. He will gain but little, and be very slow in gaining that little, if he restricts himself to crosses of closely related species. Thus, for practical purposes we are brought face to face with the question, "How many distinct types of Narciss are there amongst the twenty-one reputed species?" Opinions will differ, but I am here to say that after much thought upon the subject I can find no more than five. I will describe them very briefly. The Basket Daffodils are represented by *Narcissus Corbularia* or *Bulbocodium*; the Trumpet Daffodils are represented by *Narcissus Pseudo-Narcissus* in its many varieties; the Chalice Daffodils are represented by *Narcissus incomparabilis*, and perhaps by *Narcissus odoratus*; the Cup Daffodils are represented by *Narcissus juncifolius*, *Tazetta*, and *Jonquilla*; the Cymbal Daffodils are represented by *Narcissus poeticus*, *biflorus*, *serotinus*, and a few more. It is a pretty question whether we shall designate the corona of *N. odoratus* a chalice or a cup, and that pretty question carries us into the heart of the great subject of specific distinctions.

If I could dare to say that I feel inspired, then I would dare to say that there are no distinctions discoverable by the scientific mind in all the realm of Daffodils from the trumpets to the cymbals, from the baskets to the cups and saucers. We shall be true poets when we find them, because they exist solely in the imagination of the fanciful botanist. From end to end, no matter where you begin or where you end, the several kinds of Daffodils constitute a procession of the most delicate gradations. The species and varieties melt into each other in a way to defy scientific classification of missing links. I am not prepared to cite examples, but of connecting links there are any number, for they may all be regarded as such, and we may quote Pope's lines on the difficulty of dividing and separating, by saying—

"Whatever link you strike,
Tenth or ten thousandth, breaks the chain alike."

If we attempt to string them in the way of beads on one string we shall be perplexed at the separation of the largest from the smallest, for the gigantic Emperor and maximus, the largest of all the Daffodils, are next-of-kin to minor and minimus, the smallest of all Daffodils, or nearly so. For the illustration of this argument I will invite the students of the Narciss to consider how weak are such species as *calathinus*, *triandrus*, *poculiformis*, *Macleaii*, *dubius*, *gracilis*, *intermedius*, *pachybolbus*, *biflorus*, and some half dozen others. The difficulty of grouping, like that of species-making, is enormous. Let those who are disposed to undervalue the workers in this line of business try their 'prentice hands, and thereby learn to be modest.

In the year 1876 I proposed a classification founded on the number of flowers in a scape, and the recognised species easily fell into three groups for this purpose. They were Uniflorous, or One-flowered; Pauciflorous, or Few-flowered; and Multiflorous, or Many-flowered. This did very well until Nature cruelly produced a two-flowered trumpet Daffodil, and that reduced my classification to the level of a conundrum for which there is no answer. Thus, in one way and another, we return to our five types, which I believe will be the five species of the future, for species-making is scarcely a growing passion. We tend rather to consolidate than divide in our analyses of organic relationships; and to reduce the species of *Narcissus* from twenty-one to half a dozen or less will be a somewhat easy task for one familiar with the types and also with the methods and achievements by the hybridists. As for these last, they are bound to look for the most distinctive forms, the most loudly pronounced characters, in order to obtain new forms and new characters, and with them the vigour of constitution that fits a variety for an abiding place in the garden. If the hybridists can find more than five or six strikingly typical Daffodils it will appear that our studies of these flowers have thus far been too superficial to be of any use whatever.

Mr. H. J. Elwes, after remarking that he could not agree with Mr. Hibberd's method of classification, as most of the species as now defined are sufficiently distinct for all practical purposes, he would, however, restrict what should be considered as true species to those which had been found in a wild state. Referring to the nomenclature adopted, he thought it was very desirable that the naming of varieties and hybrids should be simplified as much as possible, and considered that it is exceedingly undesirable to bestow Latin names upon forms of garden origin. He advocated employing simple popular names, or the names of people, in preference to the cumbersome

designations which some Daffodils have received, and which have tended to a considerable degree to bring the plants into discredit. Mr. Barr's system of naming was specially mentioned as an example of the point in question. Remarking upon the distribution of Narcissi, Mr. Elwes thought the lecturer had not attached sufficient importance to that, for upon it depended a point of practical importance. Most of the Narcissi inhabited the south and south-western parts of Europe, and also in England, where the rainfall and the general humidity were greater. It was also found that the roots of the Narcissi, instead of dying each season like those of Tulips and most bulbous plants, remain fresh and more or less active throughout the year, therefore evidently needing a rather moist soil, and not being likely to be benefited by exposure to excessive summer heat or a very dry soil to insure that ripening which so many bulbs require. Commenting upon the variability of such plants under cultivation he considered that the botanist and gardener are mutually dependent upon each other, and only by a careful comparison of their observations could the limit of species be satisfactorily determined. He concluded by proposing that a resolution be passed to the effect that the method of naming garden varieties of Narcissi be simplified, as far as possible employing popular names in preference to those derived from the Latin or Greek.

In response to an invitation from Mr. Elwes and the Chairman, Mr. E. H. Krelage of Haarlem stated that in his opinion the practice adopted by the old Dutch florists for many years of giving common names to varieties of plants that were produced under cultivation was one that might be advantageously imitated by raisers of Narcissi. At the same time it is desirable to exercise some discrimination in bestowing names upon the very numerous forms obtained from seed, and which had caused many to denounce them as too much alike. It is, however, a matter of fact that the horticulturist who is paying special attention to any particular genus or class of plants becomes capable of detecting differences which a less-trained person would not notice. He thought also with Mr. Elwes that Holland is naturally better adapted for the cultivation of Narcissi than England; and he pointed out that though English growers had effected such great advances in the *Magnicoronatae* and *Mediocoronatae* groups, yet the *Tazetta* forms had received much more attention on the continent, and had been there grown for a number of years in very large numbers and of many varieties.

Mr. J. G. Baker of Kew was next called, and commenced his remarks by highly complimenting Mr. Burbidge upon the services he had rendered in connection with the Narcissus both as an artist and a writer, and observed how very important is the assistance of a skilled draughtsman in fixing the characters of the delicate gradations of many Narcissi, without which the work of the descriptive botanist is almost useless, as words cannot convey an accurate idea of some of the finer characters. He also considered that a public acknowledgment was due to Mr. Barr, who has done more than any other cultivator to improve the Narcissi and distribute them accurately named; and though he had employed the long descriptive Latin names objected to, he had simply followed the example of numbers of excellent writers and botanists of previous days. Still he wished to support Mr. Elwes' proposition with regard to simplifying the nomenclature of garden varieties. Mr. Hibberd's idea as to grouping was right in the main, but what he termed species Mr. Baker would regard as sub-genera, for the species that had been found in a wild state are readily distinguishable. In grouping, the terms genus, sub-genus, species, sub-species, and varieties are employed, the last-named being restricted to those found in a state of nature, and for these only he would employ true botanical names; for the two other divisions, garden varieties and hybrids, popular names are much preferred.

Mr. Barr said that his chief object had been to have his collection as accurately named as possible, and to this end he had consulted all the best authorities; but when these failed him he had relied upon his own judgment. He had at one time adopted such vulgar names as Codlins and Cream for some Daffodils, but had then been accused of deserting classical nomenclature; now he was in similar difficulty in the other direction. At the same time it should be remembered that he had employed the common names Leeds, Burbidge, Nelson, and Barri for groups of distinct hybrids, with which at least no fault could be found.

The Chairman then put to the Meeting the resolution proposed by Mr. Elwes and seconded by Mr. Baker, to this effect, "That in the opinion of this Conference it is desirable a more simple method of naming garden forms and hybrid Narcissi be adopted, and that popular or common names be employed for them in preference to botanical names." This was carried unanimously, but the Chairman expressed an opinion that it would be advantageous to appoint a committee of specialists to consider the whole question; and this was ultimately decided upon, the Committee to meet on the following day (Wednesday).

Mr. W. Brockbank of Manchester called attention to the double Narcissi which he thought had been somewhat neglected, for many are very beautiful and worthy of extensive cultivation. Referring to the structure of the double forms, he said it is curious that some of the double forms of *N. Pseudo-Narcissus* retain their stamens and pistil, producing seed freely, but he was not sure if the same character was observable in other double varieties, such as the *N. incomparabilis* group. Some discussion followed this, several stating that the double forms frequently bore seed which produced plants with single but never with double flowers, and Mr. Baker explained that in some cases the duplication was due to increase of perianth divisions, at others to the cutting up of the crown, to the metamorphosis of stamens or pistils, or of both; and thus in some cases the stamens might be present only, and in others the pistil only, the latter if fertilised by pollen from other flowers being of course capable of producing seed.

Mr. G. F. Wilson thought it was desirable that more attention should be given to the *N. Tazetta* varieties for cultivation out of doors. It is a common opinion that these are really greenhouse plants and much more tender than the other groups, but this he had proved was quite a mistake, for he had them growing freely in his garden at Weybridge.

There was some further discussion concerning the culture of particular species, in which Mr. Frank Miles, Mr. Short, and the Rev. Engelheart engaged, and the meeting then terminated with a cordial vote of thanks to Professor Foster, Dr. R. Hogg, and other members of the Council who had assisted in the scheme.

FORESTRY IN THE SANDWICH ISLANDS.—Considerable attention is being directed to forestry in these islands. A recent report says that a

century ago this country was in nearly every district fairly well wooded, and in some parts, now bare, was heavily timbered; but during the last fifty years it has suffered by the hand of the wood-chopper, the ravages of fire, the encroachment of cattle and goats, the attacks of insects, and the parching droughts, until many places where formerly the springs and streams never failed in summer or winter there is now no running water except in rainy weather. The animals eat the young trees, trample upon the roots, and in various ways weaken or destroy even the larger trees. The birds, accustomed to the dense shade and quiet of the woods, desert the places opened to the glaring light and drying rays of the sun, and the myriads of insects have it all their own way. Destructive and annoying insects have, like noxious weeds and grasses, been unintentionally introduced in the packing of merchandise and on plants and seeds, and there are not many insect-destroying birds to help in keeping them down. It is hoped that the attention which is now being directed to this important subject may cause a happy change to take place.

A TEA ROSE HOUSE.

WHAT favourites Tea Roses are! No flowers are more appreciated by the public; and they are especially valuable, as they may be had in bloom during the winter and spring, and again during the summer (their usual blooming period). It is, however, during the winter and spring that Tea Roses are more appreciated, and to have them then they must be grown under glass. No garden of any size should be without a Rose house, and the best I have seen is the conservatory at the King's Acre Nurseries, Hereford. This is a large structure, very light and span-roofed, with a well-prepared centre bed on the ground level, a walk round it, with a raised tan or leaf pit about 3 feet wide next the sides for growing Roses in pots. The artificial heat is supplied by flow and return 4-inch pipes. The centre bed is planted with standards principally, of different heights, the tallest in the centre, with other rows of different heights on each side. The front rows have stems about 1 foot to 18 inches high, with a few dwarfs. The roof supports, of which there are several throughout the house, have each a climbing Rose planted at the base of it and trained across the roof. Climbing Roses planted like these do not obstruct the light from those in the bed.

When Roses are planted out the bed must be well prepared and thoroughly drained. The greatest enemy is mildew, and this is induced chiefly by drought, faulty ventilation, and a cold stagnant atmosphere. Ventilate carefully at all times, and especially when the foliage is young. The house should have both top and under ventilators, but only those at the top should be opened during the early season of growth. It must be used so that it does not cause a draught. The pipes should be kept warm during the day whilst the ventilators are open, and if the pipes are painted occasionally with flour of sulphur it will assist in keeping mildew in check. The night temperature should be kept as near 50° or 55° as possible.

The border must never be allowed to become dry. When it requires watering give a thorough soaking of tepid water. If the bloom buds are well advanced supply liquid manure (if the plants are well established in the border) or a dressing of Clay's Fertiliser. Syringe the paths and border occasionally, and the foliage also on fine mornings before the blooms expand. The side beds are useful for plants in pots, as they can be removed to the conservatory whilst in bloom. The house should be fumigated occasionally to keep green fly in check. After the flowering season is over the house should be well ventilated to ripen the wood thoroughly, and do not forget a due supply of moisture at the roots. After the plants are pruned remove 2 inches of the surface soil and top-dress with some rich compost. The prunings are useful for cuttings if any plants are required on their own roots. If Roses on their own roots are not required these prunings make the best of grafts.—A. YOUNG.

RHODODENDRON FORTUNEI.

AMONGST the many beautiful shrubs for which we are indebted to the late Mr. Fortune, few are equal to the lovely Rhododendron which so worthily bears his name. Of a large and varied genus it stands out boldly in its characters, and though somewhat related to *R. Griffithianum*

in some respects, yet it is abundantly distinct and easily recognised by its superior rosy-coloured flowers. The leaves are elliptical, about 6 inches long, bright shining green with crimson footstalks. The flowers are borne in close heads of nine or ten, the corollas being 3 to 4 inches in diameter, with rounded spreading lobes, rosy on the outer surface and lighter within. In one respect the species is strikingly peculiar. The corolla has seven lobes and fourteen stamens. The large floret is of a soft pink colour, and has a very sweet odour. There is a yellow tinge in the centre of the corolla, and a well-grown truss is a very striking and beautiful object. It hybridises very freely with some other species and with hardy hybrids. Mr. Luscombe has raised some lovely seedlings between it and *R. Thomsoni*, which Messrs. Veitch possess. Some of my seedlings of the same strain have produced very grand flowers.

The true species, however, is most interesting. Mr. George Paul has a fine collection of plants of the first importation, and Messrs. Veitch of a subsequent importation by their collector. Judging by the foliage the



Fig. 64.—*Rhododendron Fortunei*.

two are alike, but it will be interesting when the second batch begin to bloom to compare the characters.

R. Metternichii of Japan has also in one of its varieties the peculiarity, very unusual in Rhododendrons, of the parts of the flower being in sevens.

R. Fortunei was discovered by Mr. Fortune in China, west of Ning Po, on mountains about 3000 feet above the level of the sea, where no other Rhododendron had been previously found, though at a lower level on the same mountains. Azaleas were very abundant. Seeds were sent to Mr. Glendinning in 1858 or 1859, and young plants were soon raised and distributed. It was, however, some years before flowers were

produced. It has been found to be quite hardy in most districts in the south of England. In the woodcut, fig. 64, a reduced flower and leaf are shown.—J. H. MANGLES, *Valerwood, Haslemere.*

NOTES ON ORCHIDS AT WESTBROOK, SHEFFIELD.

THIS place has long had more than a local reputation for its fine collection of Orchids, and which have been previously referred to in this Journal as being grown in close proximity to the extensive snuff mills, in which what is widely known as "Wilson's Top Mill Snuff" is manufactured, and with which the atmosphere of the Orchid houses is at most times heavily charged. The late proprietor, H. Wilson, Esq., was a great lover of Orchids, and spent large sums in their purchase and cultivation, and under the skilful management of his gardener, Mr. D. Clements, his became one of the best private collections in the provinces. In 1881, however, owing to the illness of Mr. Wilson, which eventually terminated fatally, a large portion of the collection was disposed of at Stevens' Rooms, and Mr. Clements left Westbrook to seek "fields and pastures new," which he soon found at Arnot Hill, Notts. For a year or two from then little was heard of "Orchids at the Snuff Mills," but at the present time a great revival appears to have set in. Mrs. H. Wilson and her son, Mr. Alfred Wilson, appear to unite in supporting their able gardener, Mr. Pidsley, who is an enthusiastic and skilful cultivator, and appears likely to soon restore the collection to much of its former excellence.

At the present time the flower house is exceedingly gay with a grand lot of Odontoglots and Dendrobies. The collection of Odontoglossums at Westbrook is especially fine, and well fills two span-roofed houses, each about 40 feet by 12 feet. The plants are in the most robust health, and are throwing up quite a small forest of flower spikes. I noticed *O. Alexandræ*, which had thrown up two grand spikes from one pseudobulb, one of which has twenty-seven and the other sixteen flowers. *O. Halli* has three spikes, two from one bulb, carrying eighteen, sixteen, and thirteen flowers respectively. *O. Andersonianum*, one of the best types of *Alexandræ*, has two spikes of fifteen and twelve flowers. *O. gloriosum* has sixty-two flowers on one spike, a beautifully densely flowered example. Of *O. gloriosum*, a pretty variety with much larger and brighter flowers than the type, has a good spike. Some very fine varieties of *Alexandræ* and *cirrhosum* are now flowering, and a number of plants of *O. nebulosum*. Amongst Dendrobies are some well-flowered examples of *D. crassinode Barberianum* and of *D. Wardianum*, amongst the latter is a most beautiful variety with pure white sepals, and petals very thick and waxy-looking; lip of the same colour, with very bright orange throat. A plant of *D. Ainsworthi*, which has just gone out of flower, carried 230 blooms, and is now making seven strong breaks.

Mr. Pidsley has lately repotted nearly the whole of the stock of Odontoglots in a compost of two-thirds fibrous peat to one-third sphagnum and charcoal. *Calanthes*, which he grows remarkably strongly, he is just repotting in a compost of equal parts of turfy loam, leaf mould, and decayed cow dung. He has a number of fine plants of *Dendrobium nobile* potted in about equal parts of sphagnum and bracken roots or rhizomes chopped small, in which the plants appear quite at home.—W. K. W.



HARDY FRUIT GARDEN.

Newly Planted Trees.—Un genial spring weather is very trying for newly planted trees. Failure, feeble or sickly growth, which attracts attention later in the year, often proceeds from such causes as careless planting, and subsequent exposure to the trying alternations of hot sunny days, cold nights, and dry parching winds. By careless planting negligence in any or every detail of the work is meant: to dig a hole that will barely hold the roots, to thrust them into it, and trample some soil hastily over them; to plant late after the sap is in motion, or when the soil is sodden with rain; to plant weakly or unhealthy trees; to leave the trees unfastened, so that they are liable to become wind-rocked and loosened in the soil; to plant in poor or undrained soil; or to apply no mulching of litter or half-decayed dung upon the surface over the roots. But if the trees were healthy and robust, and were planted in good time with due care in fertile well-drained soil, they will sustain no harm however changeable the weather may be. Attention is once more called to this matter, because even now much may be done to set right any negligence above the surface of the soil, and at any rate save the trees. The spring growth may, and probably will not be strong on trees suffering from carelessness, but they may be sufficiently recovered by midsummer to make good growth then. Should the weather in April prove very dry a liberal watering will much assist both root and branch growth in the young trees, and there need be no fear of overwatering if the drainage is sound. The soil generally is unusually dry for this season of the year. Many of what are termed "land springs," which begin to flow after

heavy autumnal rain, and cease to do so in summer, are already dry, which is fully two months before the usual period.

Sewage water may now be given with advantage to all bush fruits. It will tend materially to promote strong growth, fine vigorous blossom, and an abundant crop of large fruit. Strawberries, too, particularly in light thin soil, should have sewage early. The roots are now fairly at work, and the crowns already have the flower buds visible, and plenty of new foliage is opening and growing fast. Let us answer these calls of Nature promptly, and not wait till foliage is fully grown and blossom fully expanded, or we shall be too late to impart extraordinary vigour to both, which, we may add, ought certainly to be the aim of all good cultivators of fruit.

Grafting and Protection.—Bring up arrears of grafting as speedily as possible, and if clay is used look over the work occasionally and set right any premature cracking of badly tempered clay. We never use clay, but always hot grafting wax applied with a brush, the work being then well done once for all, and all risk from cracking avoided. With this, well-ripened scions, due care and skilful work, there need be no failures. Of protection we may usefully say, Be careful not to overdo it. Unless the blossom is advanced almost to opening protection is better away, so that by leaving the trees fully exposed to the air growth may be retarded as much as possible. The best way is to erect a framework over the trees to keep the coverings off, but close at hand till the blossom opens, and then to use it. If possible let the framework surround the tree, for it is not always that mischief comes from the north or east. Two years ago it was a south-western gale that battered the blossom to pieces, and literally scattered our prospects of fruit to the winds, excepting any trees that were sheltered on that side, all of which escaped harm and bore a crop of fruit. Also do not try to spread out the means of protection unduly; far better is it to protect a few trees thoroughly, and so make sure of some fruit, than to half protect many and risk the loss of an entire crop. There always must be some risk of loss in fruit culture, unless under very exceptional circumstances. Quite recently one of our large Kent fruit-growers stated at a public meeting that a certain frost caused him a loss of £3000.

FRUIT-FORCING.

VINES.—Earliest-forced House.—Examine the Grapes now taking their last swelling, and if any of the bunches are likely to bind take out a few of the least promising berries. Continue a moist genial atmosphere in the house, especially in the early part of the afternoon, closing for two or three hours with sun heat so as to secure the full development of the berries, admitting a little air afterwards so as to effect a circulation of air, and prevent the deposition of moisture on the berries during the night. Admit air early in the day, and liberally when the external conditions are favourable, leaving a little on constantly so as to produce a circulation of air after the Grapes change colour, and when this takes place gradually reduce the atmospheric moisture. If there be any deficiency of moisture in the inside border a thorough supply of tepid liquid manure should be given, and a mulch of short manure will prevent evaporation, keeping the mulching moist by damping occasionally, and this will keep the roots active near the surface, assisting in keeping the foliage healthy; plenty of moisture at the roots being even more essential in keeping the foliage free of red spider. Allow a moderate extension of the laterals, which will tend to keep the roots active, and to the keeping of the Grapes in good condition after they are ripe.

Succession Houses.—Disbudding, tying down the shoots, and stopping will require attention, as also will thinning the bunches and berries as the Grapes become fit. Allow the laterals to extend as space admits, and at the same time see that these are not allowed to interfere with the free access of air and light to the principal foliage. Muscats now in flower will require a high and moderately dry atmosphere to effect a good set, brushing over the bunches occasionally when the sun is bright and air has been given to liberate the pollen, and if there be a deficiency use that from Black Hamburgs. Although a somewhat dry atmosphere is advised when the Grapes are setting it must not be caused by admitting air so as to produce a current, and when the weather is bright moisture is absolutely essential as a means of support to the delicate young foliage. Remove the majority of the surplus bunches before the flowers open, thereby reducing the strain on the Vines, carefully fertilising those left for the crop with a camel's-hair brush, and if this were attended to we should see less stoneless berries. Water inside borders thoroughly, those swelling off their crops, and weakly Vines with tepid liquid manure. Close early at 80° with plenty of atmospheric moisture.

Late Houses.—The Vines in these are now making rapid progress, and will need disbudding, stopping, and tying before the young shoots reach the glass. If the space admits of the extension principle, stop two or three joints beyond the fruit, and allow the first set of laterals to fill up the vacant space, training the shoots sufficiently wide apart to admit of the full development of the foliage.

Keeping Late Grapes.—The winter has been so mild and dry that but little fire heat has been required to keep up the required temperature or to expel damp. Examine the bunches once or twice a week for decayed berries, and keep the bottles filled with rain water. Ventilate freely on fine mornings, closing early in the afternoon, and keep the windows closed in damp weather.

CHERRY HOUSE.—The growths that are reserved for supplying any deficiency of shoots which are required for filling up vacant space or furnishing the trees will now be sufficiently advanced to need

tying-in at the base. These and terminal shoots excepted, all the others should be stopped at about the fifth leaf. Syringe twice a day in bright weather, and once a day when the sun is not bright, until the stoning process is effected. The fruit must then be kept constantly dry, otherwise it will crack, spoiling its appearance and preventing its hanging. A dry atmosphere, however, will induce red spider; hence the paths should be sprinkled twice a day, and no injury to the fruit on the score of damp will ensue providing the house is duly ventilated at 55°. In order to have fine clean fruit the trees must be kept free from insect pests. If there be any trace of aphides fumigate moderately on a calm evening, and be careful to have the foliage dry, repeating if necessary, as it is very important that the insects be eradicated, and care must be taken in fumigation or the foliage will be injured. Before the final swelling a good watering should be given either with water or liquid manure, as may be considered necessary. Trees in pots will need special attention in watering. Admit air at 55°, freely ventilate at 60°, keeping it through the day at 70° or more from sun heat, and close at 55°. Turn on the heat early in the morning, so as to raise the temperature to 50° by 8 A.M., allowing the night temperature to range between 40° and 45°.

MELONS.—These require to be grown quickly, therefore close the house early in the afternoon; but as the sun has considerable power 3 P.M. will be early enough, and if the temperature rise to 90° to 95° all the better, especially where the fruits are swelling. This should be accompanied with plenty of moisture, and the plants must have sufficient moisture at the roots. As a preventive of red spider damp all available surfaces twice a day, keeping the evaporation troughs charged with liquid manure, and paint the hot-water pipes thinly with sulphur. Reduce the atmospheric moisture in houses in which the plants are in bloom, impregnating the blossoms daily, and stop one joint beyond the blossom. Attend to the stopping, tying, and thinning of the shoots as they require it, avoiding overcrowding as the greatest of evils. The linings of dung-heated pits and frames in which Melons or Cucumbers are growing will need prompt attention when the heat is declining, removing the cold material and supplying properly prepared fresh. Thin out the growths, and give air freely to plants in flower. A little more soil may be added to the hillocks or ridges of advancing plants as the roots protrude, having the soil previously warmed.

CUCUMBERS.—The plants now in full bearing will need copious supplies of tepid liquid manure; and to encourage a free growth close early, as advised for Melons, using the syringe freely at the same time. Stopping, tying, and thinning will need careful and regular attention, so as to keep up a good supply of successional bearing wood. It will be advisable to have some light shading in readiness for bright and powerful sun, so that it may be applied promptly in case of the necessity arising, and which frequently is most needed when a period of bright weather follows one of prolonged cold and dullness. The foliage must not be allowed to flag, or it will give the plants a serious check, and scorching may generally be avoided by admitting a little air early.

THE FLOWER GARDEN AND PLEASURE GROUNDS.

Pruning Roses.—The whole of this important work may well be completed at once. The experienced enthusiast may perhaps vary the pruning according to the habit of the various sorts, but this is not absolutely necessary. Prune according to the vigour of each plant, always well thinning out the centres, removing weakly growth, or if this cannot be spared cut it to the first joint and thereby secure a stronger break, keeping the lead or bush within bounds by shortening back main branches where necessary to a well-placed young shoot. For a Rose to continue vigorous the growth must be constantly starting from near the stems, and this in most cases is only effected by free annual pruning. Our plan, which rarely fails, is to cut the smallest growths either clear out or to one joint, the medium-sized growths, say of the size of a slate pencil, to two joints, and the strongest to three or four buds or joints. More blooms may sometimes result from less severe prunings, but we look beyond the current year. Growers for exhibition may be less free with the knife, as in their case they only require a few extra fine blooms for one or two seasons from the plants, and then these are either sold or thrown away. Dwarfs should be treated somewhat similarly to the standards, unless a few of the shoots are extra strong. In this case if shortened slightly and pegged down they will flower more freely, and be less likely to weaken the remainder of the bush. Pillar Roses should not be neglected if plenty of good blooms are wanted. Shorten all the side shoots according to their strength, and lay in the ripened portion of leading growths where they may be required. All Roses will be much benefited by a liberal dressing of partly decayed manure, which should only be lightly forked into the surface, and a mulching may well be given later on.

Christmas Roses.—If it is desirable to increase the stock of these popular hardy flowers it should be done by division at once. Lift the large old pieces and freely divide with a plunging fork. Replant them firmly in deeply dug rich soil. A hot dry position does not suit them, and the less they are disturbed in such positions the better. Fruit borders where they receive a little shade during the summer appears to suit them well; and as the blooms are much the best under protection, it is advisable to plant in groups so that they may be easily covered with bellglasses, handlights, or frames. Before hot weather sets in they should all be mulched with short manure or leaf soil. The most serviceable variety is that known as *Helleborus niger maximus*.

Treatment of Bedding Plants.—A considerable number of cuttings will now be rooted and seedlings raised, all of which must be kept

growing if good strong plants are desired. Some are best in pots, others in boxes. Among seedlings that are best grown in and planted out from pots are the fine-foliaged *Solanums*, such as *S. Warscewiczii*, *S. marginatum* and *S. robustum*, *Acacia lophantha*, *Grevillea robusta*, *Wigandias*, Tobacco plants, *Eucalyptus*, *Ferdinandia eminens*, *Ricinus*, *Erythrina*, *Ferula gigantea*, *Chamaepeuce*, Japanese Maize, and *Humeas*. Late in April is quite soon enough to sow the quickly-growing *Ricinus* and Maize, but all the remainder ought now to be potted singly into 3½-inch pots, be kept growing in gentle heat, and receive a shift into larger pots, say 6 inches in size, before they become stunted and root-bound. Any good light soil will suit them, and it is necessary to take so much pains with them in order to secure strong plants, which will be effective when planted out early in June. Seedling *Cannas* may be transferred into 5-inch pots and no shift given, and the old roots can safely be divided when commencing growth, and be either placed thinly in boxes of good soil or potted. *Humea elegans* is a biennial, and seedlings raised last May ought now to be shifted into 7-inch pots, kept in a greenhouse temperature, eventually hardened off, and planted out early in June. Many of the ordinary bedding plants are best in boxes, as they grow more freely, and can be transplanted more readily from boxes than from pots. This is notably the case with *Lobelias*, *Ageratums*, *Heliotropes*, *Iresines*, *Perillas*, *Violas*, *Pyrethrums*, as well as *Antirrhinums*, *Pentstemons*, *Phlox Drummondii*, *Asters*, *Stocks*, ornamental Grasses, *Godetias*, *Cineraria maritima*, *Marigolds*, *Gaillardias*, *Delphiniums*, and similar strong-rooted kinds. Those with delicate roots such as *Koniga maritima*, *Mesembryanthemums*, *Petunias*, *Sempervivums*, *Tropæolums*, as well as *Coleus Verschaffeltii*, transplant the most safely from pots. Many place the bedding *Pelargoniums* in boxes, but where an early effect is desired strong bushy plants in pots are preferable, though unless well managed these do not always become established so quickly as plants out of boxes.

Early in April is a good time for sowing in hotbeds seeds of such quick-growing plants as *Crimson* and *Chilian Beets*, *Asters*, *Stocks*, *Zinnias*, *Love-lies-bleeding*, *African* and *French Marigolds*, *Tagetes*, and ornamental Grasses. Sown earlier they are liable to be checked in growth, thus inducing premature blooming. Sow the grasses thinly, as many of them are branching in habit, and do not require pricking out. They may also be sown on the open borders.

Shrubby Calceolarias.—Where these have been wintered thickly in handlights or frames they will be useless unless bedded out where they can be protected for a time either with frames or mats. What are wanted are sturdy well-rooted plants which have experienced no serious check prior to bedding-out time. Such can be had by placing frames on a hard bottom, in these disposing a depth of about 6 inches half-decayed leaves, and on this about 4 inches of fine soil. In this place the *Calceolarias*, which ought previously to have been stopped and be breaking afresh, about 6 inches apart each way, water them in, and keep them close for a few days. Never let them become dry at the roots, eventually harden off, and use the frames for other purposes. When required they can be cut with square balls of earth and roots attached, the ready removal of which will be greatly facilitated by the hard bottom. No frames being available dig out a wide trench in the garden, prepare, and plant similarly as advised for frames, lay stakes across, and protect with mats or old pieces of carpets. Tops of these *Calceolarias* will sometimes strike in heat during the spring months, and can be grown into serviceable little plants.

THE BEE-KEEPER.

SEASONABLE NOTES ON BEES.

DURING the last fortnight we have had dry beautiful weather, and very merry have the bees been. When the air has been still and the warm sunshine has brought out the perfume from the early spring flowers the pleasant hum of the newly awakened honey gatherers has resounded on every side, and called up a kindred note of joy from the heart of the bee-keeper. We do not ever remember our bees having such an uninterrupted spell of work on the Willow blossoms, nor have the latter for many years blossomed so freely. Bee-keepers should not forget the Palm Willow, as it is called, when planting for bees. It is one of the best plants in early spring for yielding both pollen and honey, and it is ornamental and easily grown. Three years ago we bought a quantity of Willow stakes, they were tied in bundles and looked like faggots, these were driven well into the ground, about 6 feet of each stake projecting over a pond. Now these stakes have become a belt of flowering Willows, and they have given much pleasure both to the bees and to their owner.

While speaking of plants most suitable for the neighbourhood of an apiary, we would again recommend the *Ribes sanguineum* or American Flowering Currant. We have planted it largely. It is a lovely shrub, grows very quickly, forms a good hedge, and is always much sought after by the bees. A long row of these bushes is now a crimson mass of bloom, and has been for days covered by the busy workers.

Gentle feeding, carefully and continuously carried on, together with

the fine weather and the natural income, has caused breeding to be carried on apace in all our hives. Colonies are very strong, and remind us of May rather than of March. We must only hope that no long spell of cold weather will set in to retard the progress. Having once commenced feeding we must not discontinue it, until there is a certainty of a regular natural supply of food. Hives which have been regularly fed for the last two or three weeks should now be again examined.

In our last letter we explained what we considered to be the best way to proceed in overhauling a bar-frame hive; the same system should again be carried out in looking over the combs, and we would now make our first enlargement of the brood nest by reversing the position of the combs containing brood. The brood chamber in a hive is more or less spherical. We shall for the moment destroy this shape by placing the broader portions of brood on the outside of the narrow portions. In order to re-establish the natural shape of the brood nest the queen will deposit eggs in the unoccupied portions of the now inside combs, and also in the outer adjoining combs to those we brought from the inside of the brood nest; this will considerably enlarge the size of the mass of brood, and therefore require many more bees to cover it. Less bees will therefore be at liberty for outdoor work, and we must not be too eager to enlarge the nest again for another fortnight. By that time many young bees will have hatched out, and there will be more forage in the fields, and less chance of a relapse through the return of cold weather. We may then make a further enlargement by placing a frame furnished with a whole sheet of foundation in the very centre of the brood nest.

While making these inspections and enlargements of the hive we must not neglect the more important matter of seeing that the bees have plenty of food. Every day the demand will be greater and greater as young bees are hatched out. At the same time the supply from natural sources will be insufficient for some time to come to support the colony. It is from this cause that so many stocks in straw skeps die at this season of the year. The owner sees his bees at work from morn to night, he sees wild flowers in the hedgerows, and he thinks the bees are doing well, or he does not think at all. At length he finds his bees all dead, starved to death within a few weeks of the time when they would have been of great profit to him.

Owners of straw skeps should not neglect to ascertain the state of their bees at once. At the risk of repetition we will again explain how a skep should be examined. Blow a few puffs of smoke into the entrance, tap the hive, not too roughly, a few times on the top and sides; in two or three minutes the skep may be lifted gently but deliberately from its stand and turned upside down. A puff of smoke will drive the bees from any part of the combs it is wished to inspect. The centre of the hive will, in nine cases out of ten, contain the brood nest, and the store of honey, if any, will be found on the outer combs and at the top of the brood nest. The condition of the stock can be taken in at a glance, and, if no store of food be there, feeding should be immediately commenced. A good quantity—say 5 or 6 lbs.—of syrup should be rapidly given, and afterwards gentle feeding may be continued. Every skep should be made with a hole 3 or 4 inches in diameter in the centre of the crown. Over this hole a feeding-bottle can be used when necessary, and, later on, supers can be filled. Where the crown of the skep is dome-shaped, after cutting out a circular piece from the centre the top should be made level with the hole by placing a flat piece of board on it, and filling up under the board with mortar. When the mortar is dry the board can be removed and a level surface will be left upon which to place a feeding stage or supers. A rack of sectional supers can be filled over a skep as well as over the best bar-frame hive; and it is to be hoped that those who cannot see their way to substituting the latter for the old-fashioned hive, will be induced to get their surplus honey in the form most attractive and most saleable, which is undoubtedly in sections. These sections can be obtained by the dozen, the hundred, or the thousand from any dealer in hives; can be easily sent in small quantities by post, and cost about a halfpenny each. From ten to fourteen arranged in a tray and warmly covered, will be found to be most readily entered by the bees when natural conditions are favourable. And, when filled, how much more readily will a sale be found for these than for the bellglass or straw super.—P. H. P.

TRANSFERRING BEES.

I HAVE a hive of bees in a straw skep which I fed up to about 25 lbs. weight in the autumn. A few weeks ago I examined it and found it very strong both in bees and honey. I have also made a bar-frame hive as directed in your columns by Mr. Carr. Please tell me, through the *Journal of Horticulture*, if it is safe to transfer them to the bar-frame hive; if so, when, and how? The principal honey harvest here is fruit blossoms in April and May.—“A FOURTEEN-YEAR-OLD BEE-KEEPER.”

[Replying to your correspondent, I may reasonably conclude that his fourteen years' experience will enable him to form a reliable opinion as to what really constitutes a “very strong” stock of bees, or I should be

disposed to urge him to give up the idea of transferring the contents of a skep into his new hive this spring, preferring to people it with a swarm in May, so that combs as well as hive might be new the first year of his working a hive of my pattern. I claim, however, that it is the best hive extant for successfully transferring bees into from skeps.

I will pre-suppose that the stock is strong, the queen young, and the combs not more than two years old. If these conditions exist success is certain. Let the weather be fairly settled and warm in, say, the middle of April, choose a fine sunny day, and prepare for work by arranging that the entrance of the new hive shall occupy a position as near as possible to that of the skep in which the bees now are. Pieces of narrow tape each 15 inches long will be required (a knot of tailor's stay tape, costing one penny, is the best material to use). Drive the bees into an empty skep and set it where the old hive stood, brush all the stragglers off the combs with a feather, and when the skep is completely cleared of bees take it indoors at once to a warm room or greenhouse, and, remembering that it will contain hatching brood in all stages, do not leave it to become chilled or allow it to be exposed to cold wind. Set the skep bottom upwards, and with a sharp knife cut the straw on opposite sides between the centre combs down about two-thirds of its depth; cut away the skep, leaving the combs exposed so that they may be removed as required; probably about seven combs will contain brood, &c. Cut each comb out above the brood, a folded cloth covered with a piece of newspaper makes a soft bed for it to lie on, and does not injure the brood; lay the top bar of a frame with its under side close to the upper edge of the comb, and with a pocket knife cut round the inside of the frame, so that when the superfluous parts are removed the comb will fit closely into the frame. A couple of tapes tied round the outside of the frame will keep the comb firm. As each comb of brood is fitted into a frame set it in the “spare frame box” (which may be placed in front of the fire for warmth). About seven frames will probably hold all the combs which contain brood, eggs, &c., and one additional comb may be given with honey and pollen.

Should the brood in any comb extend below the depth of the frame it must be cut neatly through, and two of such narrow pieces fitted together will fill another frame. The bees in the hive will thus be confined to eight combs, and if the stock is a good one they will fill up the space completely, with no risk of chilling brood.

Carry the eight frames in the spare frame box and set them in position at one end of the hive, close up with the divider, and place the empty spare frame box on the top of the frames. Now bring the bees in the skep, and with a smart rap knock them out on the top of the frames; the empty box will keep them from running over the sides, and they will soon take possession of their brood combs.

Put plenty of covering to keep them warm and feed regularly. Contract the entrance to less than an inch, using one of the side entrances, not the centre one. As the bees hatch out and require more room give frames of foundation, but as the main honey harvest comes in it will be better to give a crate of sections before the bees have filled all the frames in the body box. The advantage will then be found of being able to let them add to the brood combs without disturbing the crate of sections; but the zinc excluder must be used to keep the queen below.—W. B. C., *Higher Bebington.*]

TRADE CATALOGUE RECEIVED.

J. Epps, Vauxhall Station and Ringwood, Hants.—*Price List of Peats Leaf Mould, Loam, and Sand.*



* * All correspondence should be directed either to “THE EDITOR” or to “THE PUBLISHER.” Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (W. Williams).—You can obtain all the particulars you require by writing to the address that was given on page 254 last week. We do not supply the work in question.

Inquiry on Vines (*J. M., Northampton*).—Your inquiry never reached our hands. If you will send full particulars of the condition of the Vines on which you need information your letter shall have our best attention.

Stamps for Numbers (*H. S.*).—You have not sent stamps for postage. If you send 3d. more, what you want shall be forwarded; but you will perceive that your name and full postal address are necessary for this, and these you have accidentally omitted. Your question about Vines will be answered next week.

Winter-flowering Heaths (*A Young Head Gardener*).—Undoubtedly these rank amongst the most ornamental and admired of flowering plants during autumn, winter, and early spring, and they ought to be more extensively grown. We shall publish an article on their culture in an early issue that will be more serviceable to you than a brief reply in this column. Many persons fail to grow these plants well, some by want by experience, others by lack of the requisite accommodation.

Vines Flagging (*A. G.*).—You do not state how far your Vines are advanced, and unless they are in flower the temperature is 5° too high. You have probably used too much fire heat from the commencement, and kept the house too close. This, with a period of dull weather, would result in flimsy foliage that could not endure a sudden outburst of sun. As the roots are in an outside border they can scarcely be dry. Lower the temperature a few degrees, avoid a close moist atmosphere, leave the top lights slightly open all night, admitting more air immediately the thermometer indicates an increase of temperature in the morning, and you may expect more substance in the leaves, better enabling them to endure the sun. If they continue to flag sprinkle the glass with whitewash applied with the syringe; but only as the lesser of two evils, scorching being the greater. Are the roots active and working in good soil?

Heating Vineries (*C. H., Belgium*).—The maximum temperature you will need in a late vinery will be 70° to 75° by artificial means, and to secure that you will need six rows of 4-inch pipes along the front of the house, or three flows and the same number of return pipes. The pipes must be so placed that they are above the border, and would be best disposed on the flat, so as to extend over a considerable part of the area, and thereby diffuse the heat more evenly. There ought to be a clear space of a yard between the pipes and the front wall, so as to admit of the Vines being planted along the front inside the house. Four rows of 4-inch pipes—that is, two flows and corresponding returns, will be sufficient heating power for the early vineries. You do not give any position for the boiler, but we presume it would be fixed in the coach house at the back of the late house, through into that house at the end next the early house, and then branch from it to the early vinery, the pipes being taken in a covered flue or drain along the back pathway of the late house to the early house in front of the gardener's rooms. You will need valves on all the flow and return pipes, so that the houses can be heated separately or together as required. Ventilators in the back wall would not suffice, as we fail to see where the ventilation is to come from: there really is no means of the heated air passing away and being replaced by fresh. The chief ventilators should be in the roof, lights running the whole length of each house and made to open by crank and lever movement little or much as required. For the late house the opening lights ought to be 3 feet wide or down the roof, whilst for the early houses 2 feet wide would be suitable.

Vines (*A Lady*).—If your Vines are healthy and the roots are plentiful near the surface of the border, the compost of which is good, the bunches you describe will develop, and weigh, perhaps, a pound each, or at least the best of them ought to do so under good management. The temperature of your house is 5° too high by fire heat, but the sun temperature of 85° is right. The late varieties are rather slow in starting, but with a genial atmosphere they will soon commence growing at the present temperature. When the bunches are visible the heat may be raised 5°; and if you increase that a few degrees when flowering, again similarly when the berries commence swelling after stoning, allowing a proportionate increase of sun heat, the Grapes will be ripe in September.

Tomatoes (*Idem*).—A compost of two parts turfy loam, one of decayed manure, and a sixth part of pulverised bones will be suitable for Tomatoes, and you may drain the pots as you propose. You would probably find Mr. Iggulden's manual "The Tomato" useful, which can be had post free from our office in return for 1s. 1d. in postage stamps. It gives all the details of culture both in pots, frames, and the open air.

Marechal Niel Rose Leaves Withering (*A. S. D.*).—It is not unusual for a number of the first formed small leaves to wither as the larger, later, and better foliage expands, and the growth of the Rose advances towards the flowering stage; several leaves that have remained on the stems since last year also wither in the spring. There are still signs of scorching on the leaves sent that would seem to indicate some error in ventilation. Syringing too late in the afternoon and deferring the opening of the ventilators too long in the morning would contribute to the withering of the leaves, so would insufficient supplies of water at the roots. You do not state the size of the plant; unless it is very small the quantity of water you give is not half sufficient. Possibly it is in this respect you err, and liquid manure also may be needed. After writing the above your letter was destroyed, and as your address cannot be remembered you will perhaps oblige with it again, and what you want shall be sent; if at the same time you state the space your Rose occupies and the nature of the soil, with the size of the border, we may perhaps be able to give you further advice on the subject.

Marechal Niel Rose (*G. F. M.*).—It is almost impossible for us to fully comprehend the condition of a plant from a general description of it in a short letter. The plant, judging from the specimens sent, is certainly in a debilitated state, and has not strength for developing the flowers; it is, therefore, overcropped, few as the blooms may be. As to the soundness of our advice on cutting-back the growths, we need no better testimony than is embodied in a communication from Mr. Divers in another column. Nowhere is this grand Rose grown better than at Burghley, hundreds of blooms of exhibition quality being cut from one plant, the leaves of which are at the least four times the size of those you have sent. But cutting-down alone is not sufficient for producing vigorous growth. The roots of the plant must

be strong and actively working in good soil, and the stock must be sound. Perhaps the stock of your tree is faulty in some respect. Is it cracked or cankered? Again, the tree may be old and worn out, as this Rose does not usually continue vigorous for many years on the Briar. There are exceptions, we know, but the rule we have stated. The border you mention is abundantly large, but what of the soil? It may be sour or inert, or possibly it is or has been dry at the bottom. If the plant is not old and the stock is sound we have no doubt we could improve the condition of the Rose. As it appears that something more than mulching is needed we should dig out most of the old soil, keeping the roots moist during the process, and the foliage too, shading it also if needed to prevent flagging. We should then surround the roots with turfy loam, with a seventh of decayed manure mixed with it, and a liberal quantity of wood ashes if available, or a sprinkling of bonemeal, say two quarts to a bushel of soil. We should also shorten-back the growths to good buds in the young wood, syringe the plant, and keep it as warm as possible, then expect fresh growth to start that would gather strength during the season and produce far better foliage than is produced now, and eventually better flowers. You will perceive we are very willing to assist you, but feel a desire to know something more of the character of the plant to enable us to do so effectively and to our satisfaction.

Moss Litter for Mushroom Beds (*J. H. B., Sunderland*).—Gardeners who contribute to the press, or whose success in culture is recorded therein, are often troubled with so many letters that they are unable to answer them; also by want of thought on the part of seekers for information are taxed with postage, if they do reply, that ought not to be imposed. If you did not enclose a stamped directed envelope to the gardener you name he was quite justified in not acknowledging the receipt of your letter. Moss litter after being used in stables is an excellent medium for growing Mushrooms. We have seen highly productive beds that were made with this material, not outdoors, but in a close shed. Mr. Walker of Sheffield grew his Mushrooms in boxes under cover, and they were referred to as follows by a correspondent in December, 1882:—"Mr. Walker made up some beds with moss litter, which have succeeded beyond his expectations. He says he has never before had beds which have been so quick in coming into bearing or so lastingly productive. He commenced gathering Mushrooms in five weeks from the making-up of the beds, and when I saw them he had been gathering from them every day for five weeks, and the beds then were quite covered with fine Mushrooms, which are very thick and solid. He also showed me a box which by way of experiment he had filled with moss which had not been used in the stables, but which he had saturated with stable drainage from a tank where it is collected. This upon being made up into the box heated very strongly, so that he had to wait a number of days for the heat to subside before spawning, but when I first saw it the spawn had run through it and Mushrooms were appearing apparently as thickly and as freely as upon the other beds. On a subsequent examination there was no doubt the experiment was a great success, as the box was crowded with splendid Mushrooms." If you desire further details on growing Mushrooms in moss litter you will find them on page 442, vol. vi., of the Journal, the issue of May 31st, 1883. If you do not possess that number we think it can be supplied by the publisher on receipt of 3½d. in postage stamps and naming the date we have given.

Vines Dying (*G. M.*).—We sympathise with you very much in the loss of your Vines. It is, indeed, a great disappointment to see them die one after another in the way you mention. We are more surprised at the old than the young Vines dying, assuming they are not attacked with the phylloxera. Whether they are or not it is impossible to determine without a close examination of a portion of the old roots, and especially the young fibres. You say nothing about the soil. Are you sure it is suitable? The protection you have given is quite sufficient. We are not at all surprised to hear of the collapse of young Vines planted in an outside border, and the whole length of the rod retained and started into growth in February. By that treatment the sap is drawn out of the stems before a sufficient number of roots are produced for continuing the supply. One of your Vines affords evidence that the root-action was too feeble for the length of cane, as when this was cut down to the ground it commenced growing. Making a border of good soil 3 or 4 feet wide up to the side of the house, and planting canes shortened to 2 or 3 feet, would with good attention result in healthy rods. It does not do, however, to shorten the canes in spring, and any that may be planted now should have the buds removed from the upper half of them, thus concentrating the force of the roots on the buds below. A narrow border is as good as a wide one the first year, and it can be increased in width as required. We presume you have examined the stems of the Vines and satisfied yourself that they have not been injured by rats or mice. We have known several Vines killed by these destructive rodents gnawing the stems and cutting off the supply of food from the roots. If we can help you further we shall be glad to do so.

Fungus in Vinery (*S. E.*).—We are sorry to inform you that your Vines are infested with fungus, the bark being thickly covered with it in a manner which we have not previously seen, and it is also unfortunately present on the roots. A portion of the mulching material is also permeated with fungus, including the mycelium of the Mushroom. It is in all probability with this mulching that the fungus has been introduced. It may be cleansed from the rods easily, and as the roots may not be seriously infested, as those before us are not, the Vines may possibly recover. At once remove the loose bark carefully and burn it, then thoroughly wash the rods with a mixture of sulphur and water. The mixture will be more easily effected if a few handfuls of sulphur are tied up in a piece of canvas and soaked for a time in hot water; then rub it well with the hand and mix in cold water to the consistency of cream. Apply this to the rods, rubbing it well into the interstices of the bark with a brush. A toothbrush will be useful for working round the spurs. If this work is well done the fungus on the rods will be destroyed. Next remove all the mulching from the borders with a portion of soil, and give a good dressing of freshly slaked lime, spreading it on to the depth of half an inch and pointing it into the surface, then giving a heavy watering with water at the temperature of 100°. If you can readily procure some ammoniacal liquor from gasworks, and add one gallon to five of the water, it will act both as a destroyer of fungus and a manure to the Vines. Although the border is not dry, this watering will do no harm but good, as it will warm the border, thus inciting more root-action, and check the

spreading of the fungus. You will do well also to paint the hot-water pipes with the sulphur mixture, not, however, having them very hot when it is applied. Still they may be heated. Raise the temperature of the house 5° by fire heat and maintain a buoyant atmosphere, anything approaching to mugginess to be carefully avoided. The top ventilators should be left slightly open all night and further opened shortly after the sun reaches the house in the morning, and do not close early in the afternoon in the usual manner for promoting a humid atmosphere. We are not without hope that under the treatment suggested the Vines will improve. Your letter is so explicit that we fail to see you would derive any advantage from a personal interview. We shall be glad to have a further report in the course of a month on the condition of the Vines.

Names of Plants (Youth).—1, *Erica carnea*; 2, *Lithospermum prostratum*; 3, *Omphalodes verna*. (C. W.).—We do not recognise the varieties, one of the blooms of which was quite withered and the others injured in transit; nor do we undertake, as we have many times stated, to name Camellias or other varieties of florists' flowers that originated from seed. They are far too numerous, and many of them too closely resembling each other, for anyone to do so without actual comparison with others in a large collection.

Smoking Bees (D. Smith).—"P. H. P." uses an ordinary bellows smoker, and says you cannot do better than get "Clark's American Smoker," price 3s. This will burn almost anything, and keep alight for hours. Rotten wood answers well, but rags, dry sawdust, brown paper, &c., answer equally well. This smoker can be obtained from Messrs. Neighbour, 149, Regent Street, London.

COVENT GARDEN MARKET.—APRIL 2ND.

A FEW samples of new Grapes to hand, but with the gloom over business and a good supply of old, they meet with a cold reception. Prices generally barely maintained. Large supplies of vegetables.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	to 5 0	Nectarines dozen	0 0	to 0 0
" per barrel	0 0	0 0	Oranges 100	6 0	10 0
Apricots box	0 0	0 0	Peaches dozen	0 0	0 0
Chestnuts bushel	10 0	0 0	Pears, kitchen .. dozen	1 0	1 6
Figs dozen	0 0	0 0	" dessert .. dozen	1 0	5 0
Filberts lb.	0 0	0 0	Pine Apples English .. lb.	2 0	3 0
Cobs per lb.	1 3	1 6	Plums and Damsons ..	0 0	0 0
Grapes lb.	5 0	10 0	Strawberries lb.	4 0	8 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Beans, Kidney 100	1 0	1 6	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 3
Broccoli bundle	0 9	1 0	Parsley .. dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	1 6	2 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney .. cwt.	4 0	5 0
Carrots bunch	0 3	0 4	" New lb.	0 4	0 6
Cauliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 0
Coleworts .. doz. bunches	2 0	4 0	Scorzonera bundle	1 6	0 0
Cucumbers each	0 6	0 9	Seakale basket	1 0	1 6
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 0
Herbs bunch	0 2	0 0	Spinach bushel	2 6	3 6
Leeks bunch	0 3	0 4	Tomatoes lb.	2 0	3 6
Lettuce dozen	1 0	1 6	Turnips bunch	0 3	0 0



MILDEW IN WHEAT.

(Continued from page 256.)

BEFORE entering upon the disposal or destruction of the germs or spores of this mischievous fungus we must refer to some of the most prominent forms of its species, and their time and mode of attack, together with a statement of those districts wherein it is most prevalent, also by looking back and noting those years when it has proved particularly injurious. The conditions under which the disease is developed to the greatest degree must not be omitted, such as the situation of the farm or fields, with the soil and climate which favour or resist the disease. We must also consider how previous cultivation may inadvertently favour the disease, or may by judicious and special management evade loss from it. The sort of Wheat, the period of sowing, and the quantity of seed used per acre must be thought of. The period of harvest, the flowering period, and the date of first observation of the disease must, with other general observations, be noticed with a practical minuteness so essential in enabling us to combat the disease, and to some extent to evade it by anticipatory management in various ways.

One of the most singular means by which this fungus may be

unwittingly propagated—we allude more particularly to a special means of propagating or reviving the real and fatal mildew—is related in Mr. Little's essay before referred to. This states "that the form in which the spores (called Teleuto spores, or rest spores) are capable of lying dormant and retaining their vitality. Starting from this point—that is, with the blackened straw of the previous year, we find that in the spring the Teleuto spores are quickened into life, and from them are produced another kind of spores (Promycelium spores), which are said to be unable to retain life and bear fruit unless they can meet with a Barberry tree or bush. Having settled upon a leaf of one of these shrubs the spore bores into the interior, and there develops into mycelium, which in the course of about eighty days produces rusty patches both on the upper and under sides of the Barberry leaf. From these spots of rust two different kinds of spore are shed—*Æcidium* spores from the under, *Spermagonia* from the upper side of the leaf, and it is supposed by Mr. Plowright they are of different sexes, the smaller spores or *Spermagonia* playing the part of the male. *Æcidium* spores (perhaps fertilised by the *Spermagonia*) are distributed in the air in incalculable numbers, and those which fall on plants adapted to fulfil the office of host plants, germinate under favourable atmospheric conditions—that is to say, in damp weather, and throw out a germ tube, which enters the host plant through one of its stomata or breathing pores. Having effected an entrance, mycelium is again developed in the tissue of the plant (Wheat or Grass), and the fungus has now obtained possession of a home in which it can complete its life cycle. In the course of ten or twelve days *Uredo* spores are produced on the outside of the leaf. These are distributed, and germinate and reproduce their kind. The reproduction of *Uredo* is repeated generation after generation until the host plant approaches maturity, when the mycelium throws out Teleuto spores or mildew, and the life cycle is completed."

In the foregoing quotation we recognise the identity of the fungus which produces Barberry rust with that which afterwards produces a rust on Wheat and eventually mildew, which is assumed as undisputably proved. Still it is disputed by some authorities, although we know a considerable number of practical farmers who are believers in the theory from having suffered serious losses from the mildew having spread from the Barberry bushes. To prove this we were, about twenty-five years ago, invited by a farmer in North Hampshire to visit his farm, on the estate of the late Sir William Heathcote, Bart., to view the blight extending over a large portion of a field of Wheat of about 12 acres. The rust was upon the Barberry bush in the hedge on the north-west side of the field, and the blight, which proved to be mildew, started directly from the Barberry bush, and gradually spread out like a fan opened, and upon close examination we found the straw discoloured by patches of a black and brown colour. This was about the last week in June, the Wheat previously looked well, with a bulk of straw equal to a crop of thirty bushels per acre in a favourable season. We visited this farm again at Michaelmas, and found that the whole of this crop had been cut and harvested as loose corn, and given to pigs for food in the farmyard, as it afforded only skeleton corn, which could neither be threshed nor separated from the husk, as in the ordinary practice of threshing.

Before seeing the above-noted result we were as sceptical as many others were, or may be now, as to this shrub being the medium of introduction of so destructive a mildew. Even in this or other cases it would not have succeeded if the weather had not been dark with drizzling rain, and it is most probably in this way that the theory is discredited, because the same results might not, and probably would not have occurred of a bright and sunny season. We can, however, well remember instances when the Wheat crop appeared safe from blight of any description, yet in fine hot weather when the harvest has been proceeding with every prospect of success, the grain became shrivelled, and in a portion of the same field the injury to the latest cutting was very serious both in quality and weight per bushel. Such sudden mishaps as this are by no means frequent, and this is fortunate, for it is far beyond our control, and can only be successfully guarded against by the early cutting of the crop, thus preventing any latent disease or partial mildew from proceeding to disaster through delay in the harvest field, which also, quite irrespective of mildew or other disease, seriously injures the prospects of the farmer should bad weather set in, as was the case last year in nearly all the latest districts of the kingdom. It must therefore be admitted that the mildew in Wheat will be credited with having taught a lesson—the advantages of early cutting of the Wheat, and especially in those cases where the crop is laid or lodged through the weight and bulk of the crop.

There are some interesting statements in Mr. Little's essay afforded by correspondence with a large number of practical farmers in various districts of the kingdom, and it appears from these reports that the mildew years did not seriously affect the whole kingdom in the same seasons, no doubt owing to the difference of soil and

climate. It also appears that several correspondents seem never to have had any serious experience of it in any season. These fortunate correspondents and farmers hail from Berks, Devon, Hereford, Herts, Hants, Kent, Leicester, Lincoln, Norfolk, and Sussex. On the other hand, representatives of Beds, Berks, Bucks, Cambs, Cornwall, Devon, Dorset, Hants, Huntingdon, Kent, Lincoln, Norfolk, Somerset, Sussex, and Wilts seem to have suffered seriously. In these returns the worst districts outside of the Fen country come from the neighbourhood of Hythe in Kent, Hampshire, the Downs of Wilts and Berks, the lowlands of Somerset, from North Devon, North Cornwall, and the Wolds of Lincolnshire. It would seem that next to low-lying lands those of great elevation and exposed situation suffer most, while the slightly elevated lands are the happy medium. Undoubtedly these facts induce the conclusion that mists and a saturated atmosphere are the chief conditions under which the mildew spores germinate most freely, and which are more common in the case of the vales and on the heights than in the middle zone between the two, and the fact of mildew being more felt in these situations seems to support not only the conclusions of Mr. Carruthers, but also our own observations and experience upon the subject. With respect to "mildew years" we hold that they cannot be defined by any lists of counties or districts as above stated, but that there is rarely or perhaps never a season wherein mildew is not injurious in some of the districts more than others. If, however, we were to attempt to decide that certain districts are more liable to suffer more particularly we should name the Fen districts of the eastern counties.

In referring to the subject of the destruction of the mildew germs it would seem as before stated by the scientific notice of the subject that nothing but fire will destroy them, in which case we must endeavour to evade them, for we cannot advise the destruction of our best medium straw for manure-making by fire. Yet the straw may be converted as usual into strong ammoniacal manure by the consumption of cake and roots by cattle and sheep, and having this to depend upon for the future purpose of the growths of farm crops. It is extremely important to consider how in conjunction with feeding our cattle, and the consumption of the green crops and roots of the farm, we can avoid the serious injury which it appears from all the evidence adduced by scientific men, and not disputed by practical farmers, and this we must endeavour to explain, together with other important considerations.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are fully engaged in the work peculiar to the time of year. Amongst other work the meadows intended to be mown for hay or ensilage should now be rolled with the heavy ring roller before the land becomes too hard, in order that stones may be pressed into the soil, and the same work be done on park lands, as also the Clovers and field grasses if not previously rolled. There is, however, no pressing necessity for rolling the pastures as compared with the tillage of the land, which is best done in fine weather, whereas rolling the pastures may stand over and be done after a timely rain. Where the land is intended for a fallow and green manuring combined it is time to sow the Mustard for the first sowing, and as the most approved plan is to grow three crops in succession, to be ploughed in at varying depths—that is, deeper on each successive seeding, and in this way the fallow is made—that is, the couch and weeds are buried under with the Mustard crop, all contributing to the manuring of the land, and so preparing it for a full crop of Wheat. The effect of fallowing and the last crop of Mustard ploughed in early during the month of August or September is important by giving the land time to settle before sowing, because three bulky crops of Mustard, each of which will be in general 3 feet high, but notwithstanding the land is pressed with the ring presser as fast as ploughed each time and the seed sown, yet the bulk of green produce serves to lighten the land and make it hollow and unkind for Wheat, unless the last ploughing, rolling is done in good time, so that it may settle by the effect of rain, and get stale and mellow through successive changes of the atmosphere, for at least two months before the seed is sown or drilled, the latter being best; for unless it is drilled wide apart, say 10 or 12 inches, upon the best strong or loamy soils, it will be likely to run into an excessive bulk of straw sufficient to injure the yield. It must be remembered that such crops of green foliage when well buried in the soil is not only quite enough to enrich the land for a bulky crop of Wheat, but also equal to the requirements of the next succeeding crop without any further manure being applied, and ready at the earliest period for seeding with either Barley or Oats. Sheep should now be finished feeding with root crops, so that the land intended for Oats or drage may be sown, as it is now too late for Barley if a malting sample is required, after which the sheep on the vale farms may be sold, and those on the hill-breeding stock farms may be put upon the water meadows, with a change on to Rye on the arable land, which crop is this year exceedingly forward, as we have seen the stems of Rye a few days ago 3 feet long.

Hand Labour.—Work is now plentiful. Laying out yard manure for the Mangold crop is now going on, also for Potatoes if not yet done, the spreading of which will engage some men for some days. Preparations should now be made for cutting and barking or peeling Oak trees, for on some estates large falls of timber are about to take place, and in some

instances we fear it is an enforced matter in consequence of a reduction on the rent roll through the difficulty of managing farms on hand, which on various estates are numerous, and which, although they may be laid into permanent pasture, yet this is an expensive matter, as well as the outlay for cattle for stocking the pastures. It is, therefore, a matter of the highest importance that the home farms throughout the kingdom should be managed by men of great experience, of energy sufficient to enable them to encounter the various changes which are recommended for the successful conduct of the farms in hand.

Live Stock.—The management of swine is now attracting more attention than of late, and we have no doubt that a change is at hand which will lessen the number kept and bred on the farm of the smaller breeds, more particularly those which only make light weights with a too large proportion of fat, and will, as a necessary precaution, give way to the larger breeds to enable the farmers to obtain a larger commercial profit upon their transactions in swine-breeding. Upon this point, after a long experience, we recommend that the two breeds which should be kept are the Berkshires and the large white Yorkshire; and we further believe that the cross-bred swine as obtained by mating the Berkshire sow with the Yorkshire boar is more profitable than either of these pure breeds if kept solely for profit on the farm by breeding and feeding for bacon hogs. Yet where either sort is raised as a speciality, having a good name and repute, and in the hands of careful and experienced breeders, young animals of both sexes may be sold at remunerating prices. It is of the utmost consequence to the approvers of either breed to be sure of obtaining well-bred stock. Breeding for sale of such stock or for crossing must always insure a free sale, and whether the demand is for crossing or pure breeding, yet the final object is the same—that of being enabled to obtain the greatest number of young in a farrow, and also the greatest weight for age to meet all demands, and likewise to insure the largest proportion of lean to the fat after good feeding, suitable for every branch of the trade requirements in bacon and pork. The deadlock at present existing in the legislation for the purpose of banishing and keeping out of the country the foot-and-mouth disease in cattle is much to be deplored, especially at this time when so much land has been laid into grass, and the popular opinion being strongly in favour of live stock production in preference to the growth of corn, although it still influences many farmers in pursuit of profit. It must be admitted that legislation has not yet given the dairy farmer and cattle grazier any security against diseases in the purchase or even in the breeding of cattle, and it is from this circumstance that thousands of young men who would invest in dairy farming and the breeding of cattle generally are deterred from so doing, and many are taking their capital abroad, where there is more security, and the breeding of cattle less speculative. In fact we cannot see at the present time any hope of the matter being arranged, which is now in controversy, so as to give reasonable hope of the home farmer being enabled to stock his pastures with a prospect of profit.

OUR LETTER BOX.

Kohl Rabi (W. J.).—Mr. William Bennett of Cambridge states that his practice "is not to drill the seed before the 1st of May. We seldom use more than 2 lbs. of seed per acre drilled on ridges 27 inches apart, thinning the plants in the rows to about 16 inches apart. After ridging the land as if for Swedish Turnips we lay out in the furrows 10 tons of farmyard dung, and spread about 5 cwt. per acre of superphosphate, rape-cake, &c. The ridges are then reversed, which buries the manure in the centre of the ridges. By this method of cultivation on land worth 30s. per acre to rent, we usually grow from 25 to 30 tons per acre of excellent bulbs, besides the greens, which are first-rate food; and where a dairy is kept they are of no small value to the milking cows, as they give no unpleasant flavour to the butter."

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1884. March.		Barome- ter at 32° and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
Inches.	deg.										deg.	
Sunday	23	30.122	41.4	41.2	N.W.	44.7	53.6	39.3	93.3	34.7	—	
Monday	24	30.166	45.7	42.2	N.	44.8	53.5	35.3	98.4	30.1	—	
Tuesday	25	30.182	39.8	38.3	N.	44.4	49.2	33.9	73.5	28.7	—	
Wednesday ..	26	30.112	40.4	37.0	N.E.	43.8	46.3	37.4	71.4	33.5	—	
Thursday	27	30.176	39.4	35.8	N.	43.6	42.9	37.5	52.6	36.6	—	
Friday	28	30.118	40.7	37.1	N.	42.8	44.6	36.0	55.6	35.7	—	
Saturday	29	30.056	41.9	38.9	N.	42.7	48.1	37.8	67.9	37.7	—	
		30.133	41.8	38.7		43.8	48.3	36.8	73.2	33.9	—	

REMARKS

23rd.—Solar halo, 8.30 to 9 A.M.; fine all day.
24th.—Fine throughout, with warm sun.
25th.—Fair, but colder, with dry parching wind.
26th.—Dull, but fair.
27th.—Overcast nearly all day, dry and cool.
28th.—Another overcast dry day.
29th.—Dry and fair with occasional sunshine, and starlight evening.
Barometer high, temperature much lower than in previous weeks, and very near the average. Air often very dry, and no rain.—G. J. SYMONS.



10	TH	
11	F	GOOD FRIDAY
12	S	
13	SUN	EASTER SUNDAY
14	M	BANK HOLIDAY
15	TU	
16	W	

AMARYLLISES.

HYBRIDISING has produced wonderful effects in many families of the vegetable world, both ornamental and useful, and every year the importance of the art is becoming more fully recognised, as fresh proofs are afforded of the extent to which many plants can be improved by its aid. In the majority of cases it is no longer conducted in a haphazard manner, with the hope that fortune may favour the cultivator's efforts with something novel or good, but the hybridiser starts upon his task with a distinct conception of some desirable result, and adopts what he considers the best means of accomplishing success. He may need a large share of patience in his work, but well-directed and sustained efforts have ultimately in innumerable instances caused his greatest hopes to be realised. Examples of this are afforded by most of the genera of popular plants grown for decorative purposes, and the progress of several has been occasionally traced in these pages; but as an example of special importance and interest at the present time the Amaryllises or Hippeastrums are worthy of some detailed reference.

Scores of visitors have, during the last few weeks, admired Messrs. Veitch's grand collection of Amaryllises at Chelsea, but beyond the initiated horticulturists few perhaps of those who observed the great size, symmetrical form, and brilliant colours of the hundreds of flowers there displayed had any idea of the time, care, skill, and perseverance required to produce such glorious results. Probably many would attribute the superiority to better methods of cultivation; but though this has much to do with the matter, it would be impossible for the most skilful grower to render varieties such as are even now seen at exhibitions from amateurs in any degree as handsome as the improved forms produced by crossing and hybridising. For a long time the great object of the Amaryllis lover was to improve its form; the petals were too narrow, and the flower too thin to please a florist's eye. Flowers of larger size, with broad rounded petals, were soon obtained, but with this advance in one direction there was a corresponding loss in another—namely, the colours decreased in brilliancy almost in the same ratio as the size and form improved. Having, however, gained the finer flowers the next efforts were directed to restoring or increasing the richness and brilliancy of colour. There, again, success waited upon the improver's exertions, and in consequence varieties have now been produced which are so near perfection in all the leading qualities so anxiously striven for that there appears to be little room for farther advancement. There have been many workers in this cause, but the greatest success in recent years has been achieved by Messrs. J. Veitch & Sons and Mr. B. S. Williams, who have sent into commerce varieties of standard excellence, those from Holloway being unexcelled in brightness of colour; the Chelsea varieties unequalled in form and size, while in some cases, as already noted, a combination of

the brightest colours with the most handsome forms has been effected.

Comparing the varieties at present grown in the best collections with the early forms of the parent species we see at a glance how great has been the progress. For instance, *Amaryllis equestris*, the principal progenitor of the race, was in its original form comparatively insignificant. Turning to the "Botanical Magazine," plate 305, published in the year 1795, we find a figure of a flower 3 or 4 inches in diameter, with petals scarcely an inch in breadth and acutely pointed, but of a fairly bright shade of scarlet and white at the base. This was the type first known, and which was introduced by Dr. W. Pitcairn to the Royal Gardens, Kew, many years previously. Some years subsequently a greatly improved variety appeared, said to be from Guadaloupe, which was figured under the name of *A. equestris major* in the "Botanical Register," 1817. This had flowers $6\frac{1}{2}$ inches across, the petals neatly formed, 2 inches in diameter, and similarly coloured to the species. In shape and size this was an enormous advance, and was a most welcome addition to the small number then known, besides affording a valuable foundation for further improvements.

Another early-known species, the Mexican Lily, *Amaryllis reginae* or *Hippeastrum regium*, is somewhat of the same style as *A. equestris*, but the flower contained rather more of a crimson shade with a lighter stripe in the centre of the petals and not confined to the base, as in the one previously mentioned. It is said to have first flowered in Mr. Fairchild's garden at Hoxton in 1728, and was then called *Lilium reginae*, "because it was in its best condition early in March, about the time of the Queen's birthday." The influence of this species may be traced in the varieties at the present time, for with the aid of another species, *A. vittata*, the reputedly first hybrid, *A. Johnstoni*, was obtained, which from repeated crossing with other species or varieties has yielded a numerous progeny.

Amaryllis vittata is even in its primitive state a beautiful plant, and perhaps less improvement has been effected in this type than in any other except in the size of the flower. An excellent figure was given in the "Botanical Magazine" for 1790, plate 129, which represents the flower as 3 to 4 inches long, 3 inches in diameter at the mouth, with petals 1 inch or less in breadth, white, with two rich rosy stripes down each, and a neatly waved margin. Varieties that have evidently descended from this are traceable in most collections; but though the flowers are much larger than those in the engraving named, the body colour is seldom so pure or the stripes so rich.

A. solandraeflora, from Cayenne, has assisted in a slight degree in producing the present race of Amaryllises, but not to the same extent as the others named. The flower is remarkable for the great length of the tube, which is often as much as 9 inches long, funnel-shaped, with a slightly expanded mouth, creamy white in the type; but in a variety termed *vittata*, represented in the "Botanical Register" in 1825, the petals have a rose-coloured central band and tube rich crimson.

About 1819 a species was introduced from Brazil by Mr. Griffin of South Lambeth. This was named *Amaryllis aulica*, which has played an important part in the improvement of the family, though the original form scarcely merited the title of "a splendid novelty" as it was then described. The flowers are very loose but large, 6 to 7 inches in diameter; the petals 1 to 2 inches across, of a rich crimson colour and greenish at the base. It is of strong growth, and has probably been useful in rendering some of the hybrids more vigorous if it has done nothing else.

Amongst the curiosities *A. psittacina* is very notable. It is from Rio Janeiro, with greenish flowers of good form; the petals rounded with a margin of deep red, which runs into the substance of the flower in the form of heavy veins, having a peculiar appearance. *A. pardina* is of much later introduc-

tion, dating from 1867. It has neatly formed orange-tinted flowers, but has not produced very remarkable results.

By far the most important of all is *A. Leopoldi*, which Mr. Pearce introduced from Peru for Messrs. Veitch, and which was shown at Kensington in 1869 at the time of King Leopold's visit, and was thence honoured with its present name. This is a magnificent species with massive flowers, broad rounded petals, and of a distinct colouring; the tips of the petals white, the centre crimson, and the base greenish, being, moreover, of very strong habit and easy culture. It was a most valuable acquisition to the hybridists, and advantage was taken of its character in every possible way. For a time, however, this had a rather injurious effect, for its prepotency became apparent in nearly all the varieties, and there was some danger of the dazzling scarlet shades being almost lost. That difficulty was soon overcome, and then it was found how much had been effected by the transfusion of fresh blood from *A. Leopoldi*. The whole race of *Amaryllises* were in a measure remodelled, and the result is seen in the magnificent series of varieties now in cultivation. An excellent example of an improved variety of the *Leopoldi* type is shown in the woodcut (fig. 70, page 287), which is one of Messrs. Veitch's novelties for the present year, and is distinguished by its even form, bright crimson-scarlet colour, and white tips. It bears the classical name of Mars, and is certain to command the favour of all who wish to grow the best forms.

The foregoing is but a brief review of the species that have been concerned in the progress of *Amaryllises*, and much more could be added in reference to the gradual steps by which the advance was made, by tracing the hybrids first obtained and their part in subsequent crossing. Sufficient has, however, been said to give some idea of the work and thought that have been brought to bear on the production of the *Amaryllises* so much admired.

RHUBARB.

OF the confusion which exists in the nomenclature of Rhubarb the trial at Chiswick affords conclusive proof. A sense of this confusion, and a desire to see for myself which were the best sorts to grow, induced me to procure as many of the so-called best varieties as I could and to plant them side by side, so that the trial might be as fair as possible and the results really useful. Well, the results are before me, and I shall doubtless derive much benefit from them; but uncertainty about the correctness of some of the names prevents me making them so fully useful to readers of the Journal as I could wish. For example, the plant bearing the name of Myatt's Linnaeus was quite ten days earlier than any of the others; but that is its only merit, for it is deficient both in flavour and colour. Mitchell's Royal Albert came next, and is good both in flavour and colour. Hawke's Champagne, which I believe is true to name, followed, and it combines the high qualities of earliness, flavour, and colour better than any other. Kershaw's Paragon is excellent in flavour and high-coloured; and of others Baldry's Scarlet Defiance may be mentioned for its superior flavour, Johnson's St. Martin and Salt's Crimson for colour, and Stott's Monarch for its lateness and extraordinary size, which render it so distinct as to be easily recognised.

The best variety of Early Red or Royal Albert, with Hawke's Champagne for a main crop, both for forcing and the open garden, and Stott's Monarch for a late supply, will probably prove the best selection for general culture. In making a selection, however, it should not be forgotten that Rhubarb is at its best when quite young and tender, and to retain its full flavour it should never be peeled, but the stalks should be carefully rubbed with a dry cloth before being cut up.—EDWARD LUCKHURST.

THE BEST ADIANTUMS.

(Continued from page 184.)

GREENHOUSE SPECIES.

A. affine (Willd.).—A very handsome Fern, producing large deltoid fronds, bi or tri-pinnately divided, the terminal pinnæ much the largest. The pinnules and final divisions are half an inch or more long, crenated at the margins, of a deep glistening green colour. The stipes and rachises are black and glossy, while the pinnæ are numerous and overlap each other freely. It

is a very useful Fern, the fronds being serviceable for bouquets. It grows freely in a shallow pan or planted on the rockery, its rhizomes creeping close to or quite upon the surface.

A. assimile (Swartz.).—This is a very lovely species with drooping tripinnate fronds, growing from 9 to 15 inches long the small ultimate divisions roundish, with entire margins, of delicate pale green colour, in a young state tinged with pin. Admirably suited for market culture or the adornment of rocky ledge. It constitutes one of the prettiest cool house Ferns, and when cut and mixed with flowers the fronds present a charming appearance. If plants are grown in a low temperature they become moderately firm and will stand exposure well. It is found in Australia, New Zealand, and Tasmania, and has been grown in our gardens many years, but is much more seldom seen than should be the case with such an elegant Fern.

A. Capillus-Veneris daphnites.—Of all the forms of our native Maidenhair I think this is the handsomest for cultivation in the cool house. The fronds grow from 6 to 12 inches high. Numerous segments being united, form broad crested extremities to each of the pinnæ; and the apex of the fronds, which is of a distinct dullish green colour, with the cristation rendering the plant distinct from all others. *A. C.-V. magnificum* is also a very fine form, producing large arching fronds with broad imbricated pinnules, with finely fringed margins. These are two most lovely Ferns, and all cool house collections should include them either on the rockery or in pots.

A. colpodes (Moore).—A very lovely Fern from Ecuador and Peru, doing well in the greenhouse, so it is probable that under natural conditions it occurs at high altitudes. The fronds are borne on slender dark brown glossy stipes from 9 to 18 inches long, drooping, three times divided, the ultimate divisions obliquely cuneate, the lower edge straight, the upper one rounded, usually finely lobed or toothed; when young of a delicate pink colour, gradually changing to pale green. The habit of the plant makes it an excellent basket Fern; also most suitable for the rockery, which is, indeed, the proper home for all such Ferns.

A. cuneatum (Lang et Fisch.).—This is the Maidenhair Fern so well known and extensively used where Ferns are appreciated. In all stages of growth it is most useful—in thimble pots or as large permanent specimens, such as are frequently seen at exhibitions.

A. decorum (Moore).—A great favourite, producing large fronds from 9 to 18 inches long, and from 5 to 10 inches across the base, three or four times divided, the ultimate divisions rhomboid or cuneate, with the outer edge distinctly lobed, of a light rich green colour, with a firm texture. The fronds are spreading, slightly arching, on stiff, dark, polished stipes. In any stage it is very handsome, and the fronds are most useful for large floral work, the segments being larger than those of *A. cuneatum*. It is a native of the Andes of Peru.

A. gracillimum (Moore).—This lovely Fern is now well known and very highly esteemed for bouquet work and for furnishing purposes. It is of garden origin, and is a finely divided form of *A. cuneatum*, the fronds being decomposed, with small imbricated segments, similar in form to those of the tyre, of a deep green colour, and extremely graceful in all floral arrangements. No collection should be without it, as it is very easily managed, coming freely from spores and generally true to character.

A. formosum (R. Brown).—A very handsome vigorous-growing species from the cooler portions of Australia and New Zealand, producing strong copiously divided fronds from 1 to 3 feet high, broadly deltoid in form, three or four times divided, the final divisions dimidiate, the lower edge straight, while the upper one is rounded and rather deeply lobed, of a deep green colour. As a permanent decorative Fern for the greenhouse it can scarcely be surpassed, because it is evergreen and grows so freely, while its large ample fronds are extremely valuable for furnishing, especially for the dinner table.

A. Luddeimannianum (Hort.).—This is a charming little Fern, far too rarely met with, on account, perhaps, of the difficulty attending its cultivation—at least, as far as increasing it rapidly is concerned. The fronds are from 6 to 12 inches high. I have never seen them more. The slender stipes are branched about half or a third of the way up, and are of a reddish-brown colour. The pinnules and segments are more or less confluent and clustered at the extremities of the ramifications, forming broad, crested, tasselled heads, the weight of which gives the fronds a slight but graceful curvature. Without doubt this is one of the most distinct of all the *Adiantums*, and it likes thorough drainage, light fibrous soil, with a very humid atmosphere without a high temperature. I have found it thrive freely under

a bellglass or in a small case, and with the surface clothed with *Selaginella*.

A. palmatum (Moore).—A handsome species from the Andes of Peru, producing large graceful fronds from 1 to 2 feet long, triangular in form, tripinnate, the final segments nearly an inch across, semicircular or fan-shaped, the outer edge deeply lobed, of a fresh green colour, with a firm texture. Of comparatively recent introduction, it is not yet so frequently seen in our collections as it will be, because it is so striking a plant that it must become a general favourite.

A. Pacottei (Hort.).—A very charming little Fern of garden origin, producing dense tufts of tri or quadri-pinnate fronds from 4 to 8 inches long, with the segments thickly imbricated, of a deep green colour. This is a very distinct form, and much esteemed, but as yet little known. It is destined to become a general favourite, as the small stout-textured fronds will be extremely useful for buttonholes. Happily, it is most easily raised from spores, and the plants thus raised are well characteristic of what may be regarded as the typical form.

A. rubellum (Moore).—A very charming little species, producing fronds from 6 to 9 inches high, deltoid in form and bipinnate, not very copiously divided; the segments cuneate, with the outer margin deeply lobed and toothed; when young of a deep reddish pink colour, gradually changing to light green, and in the former state it is extremely handsome. This is a little gem for chinks of the rockery or for growing in pans in a case. Native of the Andes of Bolivia.

A. reniforme (Linn.).—In this we have a plant which is very similar to *Trichomanes reniforme*, producing erect, simple, reniform fronds from 1½ to 3 inches across, with a tough texture, borne on slender stipes. It should be in all collections and treated most lovingly. Under a handglass or in a case it does well, because it enjoys a damp atmosphere. When the latter is dry it is very liable to be infested with thrips, and these creatures quickly disfigure the fronds. It is found in Madeira and Teneriffe, while a variety of it crops up in Bourbon and Mauritius.

A. Williamsii (Moore).—This is frequently called the Golden Maidenhair Fern on account of the young fronds being sparingly covered with a golden powder. It produces fronds from 1 to 2 feet long, more or less deltoid, tri or quadri-pinnate; the ultimate segments semicircular or rhomboid, with entire edges of a pale green colour. It comes from Peru, and is a very vigorous grower, and very useful as a decorative Fern, while the fronds are desirable for cutting.—T.

THE FORMATION AND KEEPING OF WALKS AND DRIVES.

(Continued from page 259.)

Now as to keeping. If left for months without any attention the horses make a track along the centre, and between that and the wheel marks on each side a ridge is left which keeps the water from running to its proper channel at the sides, and so it soaks into the crust of the road to its material damage. The moveable gravel on the top must be constantly raked on to the parts where it is wearing, and when it gets too thin to cover them more must be added. A road well kept in this respect wears more equal, for the simple reason that there is no track to follow, and therefore the traffic will be confined to the centre.

When a road gets worn into holes and thoroughly out of repair, perhaps the best thing to do with it would be to pick the whole up, rescue what stones there is in it, and add what more is required to make it substantial. This is best done by clearing a 6 or 8 foot width, level the bottom, and then place the stones out of the next width on it, add sufficient fresh stone to bring it up to the required depth, and if there is any gravel worth saving toss it back on the top, level the bottom and proceed with the next width; thus in a manner it may be called trenching. To mend an odd hole the stones should be taken out or loosened some little distance round, and the whole well rammed in to the proper level. When it is desired to strengthen an existing road run the pick diagonally across the roadway 6 or 8 inches, thus breaking the crust, when a coating of well-broken stone may be added and covered with fresh gravel.

It is also important that the drains be seen to frequently. The gratings must be as far as possible kept clear of leaves, &c., and the cavities below them cleared of any grit that may accumulate in them before they get filled and begin running into the drain.

Garden Walks.—These may be made of anything that is hard enough to keep a firm dry surface—brickbats, freestone, clinkers, &c., may be used, as there should always be sufficient

good gravel on these to hide whatever is in the bottom. The same principle of forming a good sound foundation must be followed in making these. In pleasure grounds drainage should always be carefully provided, but in a kitchen garden with Box edging there is not so much need for drains, as the wet soaks into the soil. In making a walk close to, or near a mansion, the side of the walk next the wall should be kept up the same as if it was the centre of the walk, as shown at fig. 65, so that the water may not lodge there and cause dampness in the building. It is always necessary to have a drain to carry off the rain from the roof, and where there is a border between the walk and the mansion, as shown in our section, the drain for this purpose should be confined as far as possible within the border, so that it can be seen to in case of stoppage without breaking into the walk. These should always be laid with glazed socket pipes

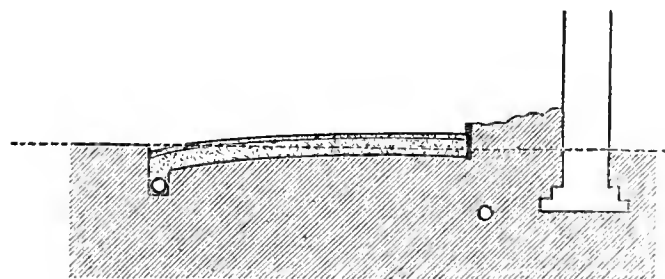


Fig. 65.

with their joints properly cemented, and to provide for any defective joints it is a safe plan to have them below the level of the foundations.

Young men sometimes find a little difficulty with regard to the level at the junction of two walks running in opposite



Fig. 66.

directions on sloping ground. Take the instance of such a case in a kitchen garden. Suppose the line *a*, fig. 66, represents the slope of the ground, or say the level of the edge of the walk

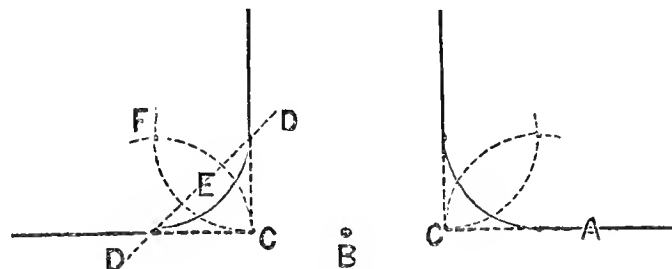


Fig. 67.

A in our ground plan, fig. 67. Drive a level peg exactly in the centre of your cross walk B, fig. 67, in a line with the edge A and level with it. Level from this peg for the edges, placing other pegs c c at each side. The same operation has to be gone through at the other end of the cross walk, when the levelling of its sides may be proceeded with. As will be seen by the two lines in the section, fig. 66, *a* representing the height of edges; A, fig. 67, and the dotted line B, the level of the cross walk. The latter is below the level of the former on the high side, and above it on the lower side at their junctions, having the edges of both walks levelled up to within a foot of the pegs c c. From these measure along each edge a distance equal to half the width of the walk, as at D D, and insert pegs exactly where the Box edging is to come. From these points stretch a line across the corner, as shown by the line E, and level the ground from the one point to the other, continuing it out to the peg c. This will gradually verge the one level into the other. Now place the looped end of a piece of string over the pegs at D D from c, draw lines crossing at E, and from this centre carefully mark the quarter of a circle from D to D to form the corners, by drawing the sharp point of a peg along the level surface. Right-angle corners should always be so rounded off, for as a rule square corners get trodden down and become unsightly.—R. INGLIS.

MIGRATORY BIRDS.—I may mention the circumstance that the nightingale was heard many times in the district of Gravesend during the latter half of March. We can scarcely suppose that in the case of a migratory species some precede the rest, either coming alone or joining some other party of birds, and they have evidently not arrived yet as a body. I infer, therefore, the suggestion is right which I have somewhere read, that a few of these birds winter with us and are heard early in

spring, or even at the commencement of the year occasionally.—J. R. S. C.

CELERY.

WHEN anyone can have this excellent vegetable fit for use from the end of July till the following April its culture surely deserves more attention than it generally receives, more especially its treatment in the trenches after being planted out. By treating it according to the nature of the soil much can be done to prolong its season for use. The soil here is very heavy, and for a supply in the spring months we sow the seed in April, grow it in the usual way till ready for planting out. We make trenches not very deep and 3 feet wide, which allows sufficient space for planting three rows in the trench. After being a month or six weeks planted, or according to the progress that the plants have made, they receive a slight earthing up about 2 inches deep with the natural soil.

They receive no other attention except watering in dry weather, and tying the plants with matting to prevent the wind breaking their outer leaves, until the month of October, when we save all the new-fallen Beech leaves, and when dry we pack them in the trench to blanch the Celery instead of using the soil; but before doing so we make a wall of soil about the height of the plants on each side of the trench to keep the leaves in their place, and to prevent them being blown about we cover with sawdust. By adopting the above plan at present we have fine fresh Celery quite different from that obtained by the old practice—namely, surrounding the plants with heavy wet soil. The advantage gained by using the leaves when lifting the Celery in frosty weather will be easily seen.—DAVID MURRAY, *Culzean Gardens, Maybole.*

THE CULTIVATION OF VIOLETS IN FRAMES.

Now that the time is at hand for commencing operations to ensure the successful cultivation of this the sweetest of winter and spring-flowering plants, the subject is worth consideration, as the pits and frames are now being cleared for other purposes, and frame cultivation of Violets is at an end for this season. But we must begin our task again if we wish to have a healthy stock of plants and abundance of large sweet-scented flowers during next winter.

The system we pursue is planting single crowns so as to cover the entire surface of the bed, and we are so satisfied with the results as to totally discard the clump system, except for pots. Our mode of procedure is to plant small side shoots or sets 6 inches apart in a nursery bed, and when they have made good strong crowns they are planted out about the middle of May in a rich prepared border 15 inches apart. During the summer they require looking over once a fortnight to remove suckers and surplus runners, leaving four or five of the strongest to each centre crown, and when they have formed a knot to stop it. The result will be the nourishment will form a good plump crown, instead of expending itself in useless suckers and runners. Small pegs should be used to fasten them down, to prevent the wind blowing them about until they have taken root.

Towards the end of September the pits or frames should be prepared. They should have a south aspect, and if there are pits that can be spared adjoining a house heated with hot water so much the better, as small perforated air bricks can be let into the dividing wall, and in frosty weather the advantage will be great, as ventilation can be afforded without admitting the cold air. The bottom of the pit can be covered with a layer of brushwood and leaves made firm, on the top of which place about 12-inch depth of good loam to within 6 inches of the glass. The plants can then be carefully lifted and placed out, pegging the radiating crowns so as to cover the entire surface of the bed, as there is no fear of the foliage overcrowding, each crown having only its proper supply of leaves, all useless wires being removed as soon as they appear. Where there are no pits to spare such as I have described, we must have recourse to the common wooden frame, which, when elevated on a layer of faggots, filled with loam, and planted like the others, a lining of fermenting material can be applied to the base, and the heat will rise into the frame, which of course must be well ventilated. I prefer a loam of a rather strong tendency to one of a sandy character, as in the former the plants produce flowers of a deeper colour; whereas the absence of moisture in a sandy situation causes the plants to become infested with red spider, which soon destroys the foliage and greatly weakens the constitution of the plants. If possible sets for planting should be procured from plants that have been liberally treated the previous year, for, like the Strawberry, they are apt to degenerate rapidly if left to themselves.

For general purposes no better sorts can be grown than the varieties known as the Improved Neapolitan as a double flower, and

Lee's Odoratissima for a single, both of which are in all respects a decided advance on the old Neapolitan and the Czar; although there are some good sorts, such as Marie Louise and Belle de Chatenay, that can be grown as a speciality, and amply repay for so doing. I consider the two first-named are as yet the best all-round varieties that can be had for frame cultivation.

The foregoing remarks may be of use to those who have to produce a large supply of this favourite flower during the depth of winter, and to those who have not tried single crowns I would advise a fair trial during the coming season; and if properly carried out they will not revert again to the clump and row mode of planting, as they will find that in the same space finer flowers and larger quantity can be grown on the "single crown system."—VIOLETA.

NOTES ON ORCHIDS.

DISA GRANDIFLORA.—When these plants are grown amongst other cool house Orchids they should have the coolest and most airy position in the house. They will not grow strongly in a close atmosphere. Abundance of water should be given them during the summer both at the root and over the foliage—in fact, in well-drained pans it would be difficult to give them too much. The moss on the surface should be kept growing and healthy both summer and winter, and the water required to insure this will be found to suit Disas exactly. From the present time these plants would do well in a cold frame, provided they can have plenty of light and yet be shaded from strong sun, but in this position they are more apt to be neglected. The other day I saw a very good method of treatment at Woolton Wood, which is worth the attention of those interested in these plants. They were growing at one end of the Odontoglossum house, and the lower squares of glass at the end close to the Disas had been removed and the spaces filled with perforated zinc, the holes being small. By this means abundance of air is admitted to the plants, which they evidently enjoyed, for they were sturdy and healthy.

SOPHRONITIS GRANDIFLORA.—A charming little Orchid when well grown; its large bright flowers give it a cheerful appearance, totally distinct from all others that are flowering at this season of the year. It will grow very well on small blocks of wood, but in this position requires more attention in watering than when grown in small shallow pans. It should be suspended from the roof, and if employed freely or alternately with Odontoglossum Cervantesii or even the beautiful and distinct O. Rossi majus, which also flowers about the same time, the effect is all that can be desired. The Sophronitis is an obliging Orchid, for it appears to thrive well either in a warm or a cool house, and I have seen some grand specimens in a stove with brighter flowers than when in a cool house. It delights in a little heat, such as afforded in an intermediate house, while making its growth, but when at rest should have cool house treatment, which insures a vigorous growth the following season. Although its flowers are brighter in heat they do not last quite so long as in a cooler house. To grow this Orchid successfully too much rooting material should not be given it; but the pans should be liberally drained with crocks and charcoal, a little peat fibre and living sphagnum being used for the compost.

CÆLOGYNE CRISTATA.—Where choice flowers are wanted for cutting this Orchid should be largely grown, for it is free-flowering under good treatment. It is also one of those Orchids that will bear pushing forward in heat or retarding to suit the convenience of individual cultivators. To flower it in succession with the least trouble a little heat should be applied to a number of plants, which will push them forward more rapidly into growth, while the remainder can be brought on naturally in the cool house. It is much better to assist them now than to have to unduly push them forward during the worst months of the year. When grown specially for cut flowers the plants can occupy pans, or will be found to do well in baskets suspended from the roof. Plants in 5-inch and 6-inch pots are valuable as single specimens for vases in rooms, where they will stand for a time without injury provided gas is not employed.

Potting should be attended to if it is required as soon as the plants have flowered, or as their new growths are issuing from the base of the pseudo-bulbs. In potting they should be well elevated above the rim of their pots or pans, which should be abundantly drained. They will thrive in a compost of peat fibre, three parts to one of sphagnum moss, with lumps of charcoal freely intermixed, and to which the roots will cling tenaciously. If potting is not needed remove the surface moss and all decomposed material possible and supply fresh, working the moss well in amongst the pseudo-bulbs. If the plants are large and crowded remove portions carefully, with as many roots as possible. It is a great mistake to allow the pseudo-bulbs of these plants to become crowded, for the flowers, instead of being large and plentifully produced, will be small and few. With a little care plants can be kept furnished with large

pseudo-bulbs, which are very much better than double the quantity of smaller ones. The portions removed, even if not having a lead upon them, will generally break back, and if placed in 5-inch and 6-inch pots become thoroughly established in a short time, making in the second season grand flowering plants. Pieces taken off with a lead and a few roots will in a season make strong plants that will flower well the following spring. Abundance of water should be given when the plants are growing actively.—W. B.

CYPRIPEDIUM CAUDATUM.—One of the finest flowers of this remarkable species that has come under our notice was grown by Mr. H. M. Pollett. The dorsal sepal is 6 inches long, and the striking caudal appendages or tails $25\frac{1}{2}$ inches in length. The bloom before us is highly effective, and a conclusive example of superior cultivation. Mr. Pollett has also sent us very fine flowers of the charming *Dendrobium Devonianum*, the labellum being good in colour, markedly fringed, and $1\frac{1}{2}$ inch in diameter.

PSORALEA PINNATA.

PSORALEA is a rather large genus of Leguminous plants, mostly from the Cape of Good Hope, and related to *Indigofera* and *Clitoria*.



Fig. 68.—*Psoralea pinnata*.

Some are very attractive little shrubs for greenhouse cultivation, but are by no means generally known in gardens. *P. pinnata*, of which a flowering shoot is represented in fig. 68, is one of the best of the sixty or seventy species that have been described, and is also one of the oldest known in this country, having been cultivated in the seventeenth century. It is a compact shrub, attaining a maximum height of 4 or 5 feet, but is seldom seen so large as that. The leaves are neatly pinnated, with three or four linear pinnæ. The flowers are produced freely but singly on short pedicels from the axils of the leaves near the upper parts of the growths, their colour being a bright blue, shaded lighter or nearly white in the centre.

A compost of peat and loam, with the ordinary treatment of Cape

plants grown in a greenhouse, suits the plant, and it can be propagated by cuttings.

CHRYSANTHEMUMS IN TUBS.

WHERE there is a large conservatory to be kept gay the *Chrysanthemum* deserves the foremost position among winter-flowering plants. There are many ways of growing it to perfection, and all commendable in their way. In well-prepared soil in the open garden they will yield abundance of flowers, but for conservatory decoration a few made-up specimens in tubs are very effective.

The great advantage possessed by tubs is that they afford a greater root-space than pots, and as the *Chrysanthemum* is a very gross feeder the value of this can scarcely be over-estimated. Then pots are very liable to be broken, especially in places where the conservatory is a distance from the houses, and the plants have to be carried thither. I have on many occasions seen pots rendered useless either from a kick or a sudden jerk against the ground.

Those who have no tubs and are not inclined to have new ones made may use old oilcasks by sawing them through the middle, putting two or more iron handles to them, then bore a few holes in the bottom for the escape of water. If a coat of paint be given the tubs are complete and will answer as well as anything, and with due care will last a long time. Of course if new ones are preferred they can be made of any size or shape that may be considered the most suitable. Bricks are as good as anything I have used for drainage with a few crocks over them, and to keep the drainage well open I prefer a layer of moss.

Now as to soil. I employ a compost of loam one part, burnt refuse one part, the remainder consisting of thoroughly decayed farmyard manure, brick rubbish, and road sand well mixed together some time before it is wanted for use. The number of plants to be grown in each must depend upon their state about the third week in June, when they should be well established, but not root-bound, in 24-size pots. I have placed three, four, and five in a tub, and the best of *Elaines* I ever saw were five plants grown together in one tub. By this means the tub can be better filled at the commencement, as it allows of a good plant being placed in the centre. It is a good plan to leave plenty of room for one or two top-dressings during the time the plants are growing, and one after they have been disbudded. For this purpose I have used a thin covering of fowls' dung, over which a layer of fresh loam is placed. This not only avoids the unpleasant use of liquid manure in the conservatory, but is a great help to both flower and foliage when washed down to the roots with clear water.

Any variety will do well in tubs, but a little forethought accompanied by good taste may help to bring about good results—that is to say, if the plants of *Elaine* are carried up the centre, with two of the pretty *La Frisure* neatly staked around the outside, and a few pots of *Isolepis gracilis* arranged hang over the tubs.—G. M. W.

HISTORICAL JOTTINGS ON VEGETABLES.

THE CELERY AND THE PARSNIP.

BOTH the Celery and the Parsnip find their natural place in the extensive order of umbelliferous plants, wild examples of which meet us in every field and beside every hedgerow, and which offers much perplexity to the student of plants, owing to the great similarity amongst some of the species. It has not a few plants of virulently poisonous character, and a larger number that are useful either for food or medicine, while there are others with no qualities of any importance. The order also offers numerous illustrations of the statement, that by cultivation unwholesome plants may not merely be modified, but almost transformed in their qualities and manner of growth. All parts of Europe have yielded examples of the Celery (*Apium graveolens*) growing wild, and showing a marked preference for marshes near the sea or the edges of streams approaching their termination. The Latin specific name (and it is to be regretted that this, as in other instances, has been given to more than one species) points to the powerful odour attached to the plant, which at an early period received the popular name of Smallage. It was also sometimes called Wild Parsley, although having scarcely any of the qualities of that plant, and even the cultivated form was by some old gardeners styled Macedonian Parsley.

Evidently as a wild plant Celery was known to the ancients, but the Romans, clever though they were as gardeners, had not discovered how to blanch the stalks, nor does it appear they cultivated it. The physicians used the root to form a decoction, and Pliny recommends the plant, stating that it counteracted the effects of bites or stings.

Probably our familiar name for it came from the Greek appellation, which alludes to the curling of the young leaves; for a century or more it was commonly written "sallary." With the old English herbalists, as Smalage, the species had also a medicinal repute. They prepared an ointment from the leaves, and squeezed the juice from the stem, which was mixed with honey, to cure sore throat; and, now-a-days some writers upon dietetics commend the stalks of Celery as excellent in their influence on the health.

Frequently do we lose all clue to the history of those who have made valuable discoveries, and thus it happens that the original grower of Celery for the table as we now see it is quite unknown, and also the exact date of its first cultivation. There is only obtainable this item of information from the excellent John Ray, that it was one of the plants brought to table as somewhat of a novelty early in the seventeenth century; and he notes the fact, that without careful attention, Celery very soon reverts to its natural or wild condition. Occasional remarks in other authors imply that, though the blanched stalks were then produced, the young foliage was also eaten, probably chopped up and mixed into a stew. Evelyn adds another item, that Celery came to us from Italy, where it had been known as Celery for only a few years previous to its introduction. He recommends that it be accompanied by vinegar, oil, salt, and pepper; we now prefer to take it with one of these condiments as a relish to cheese when we eat it raw. And he declares that for "its high and grateful taste at our great men's tables it is ever placed in the middle as the grace of the whole board."

So that, although the plant is one of our natives, no Briton can claim the credit of having tamed the wild species, but we may perhaps boast of some skill in producing good varieties, also in growing very fine examples. Loudon refers to a large plant dug up near Manchester, weighing 9 lbs. when washed, and over 4 feet in height; when cut it was crisp and of good flavour. The Turnip-rooted Celery was, it is said, brought from Germany to England about a century ago; it is mentioned by Mawe and Abercrombie, and, though hardier than other kinds, this has never been a favourite here, yet it has retained its German repute. Another variety, which seems now to have been lost sight of, was a tall sort grown in Samos, from whence the seed was sent to Norfolk in 1797. Only four or five kinds are noticed in books of gardening of the reign of George III., but the consumption of Celery in and near London was considerable, so that large quantities were raised by the market gardeners round the metropolis. Abercrombie, indeed, speaks of it as an article which many families required daily during several months of the year.

The Parsnip (*Pastinaca sativa*) may have taken its Latin name from the circumstance that the root in its shape resembled a kind of digger named "pastinum," as some assert, but this explanation is not highly satisfactory. Nor is it certain that "Parship" is only a perversion of the Latin word, yet it may be so, unless the "nip" or "nep" bears an allusion to another group, perhaps once supposed to be akin to the Parsnip. This plant, possibly less common than in the olden time, still grows wild upon chalky downs, in Wiltshire for instance, conspicuous during July and August by its yellow flowers and glossy leaves. Although less objectionable in its qualities than is the wild Celery, it is of no value while it is an uncultivated plant; but hogs, when at large, are attracted to the roots, which they dig up and devour. But there were formerly some of the believers in that medical lore which was oddly combined with astrology, who set great store by the seeds of the wild Parsnip, containing as they do a pungent essential oil; these were administered to those suffering from various forms of intermittent fever, or a decoction prepared from them. Afterwards, when the Parsnip became the garden plant, the seeds of that kind were commonly sold by druggists in place of those of the wild plant, much to the vexation of the herb doctors, for Culpepper and others maintained that the seeds of the "tame" Parsnip had little virtue in them.

Early in the Christian era we find the cultivation of Parsnips referred to, and it is stated that the roots were sent from a district of Germany upon the banks of the Rhine to the capital of the Roman Empire, to supply the table of the sensual Tiberius, who, as we know, was apt to pamper his appetite with articles much less wholesome. In serving up this vegetable the Romans removed the pith, which they did not eat, and poured over it a sauce compounded of honey, so adding "sweets to the sweet." Their method of culture had its peculiarities; one of these was that they took up the plants and replanted them when the roots had attained some size. They also regarded it as a good plan to allow them to be in the earth through a second season before eating them. It would seem the leaves were occasionally cooked, and a belief that the plant warded off the bites of serpents led some persons to carry about habitually some part of the Parsnip.

Though the Romans introduced various fruits and vegetables to these shores, we cannot credit them with the fact of having brought

us the Parsnip, and it is all but certain that the Flemings, who fled to England from the persecutions carried on by that tyrant Philip II., and who are known to be the first cultivators of the Carrot here, did also raise the first English Parsnips. This would be about the middle of the sixteenth century, and the place probably the soil of Kent or Essex. Gerarde, a man quite up to the level of the naturalists of Elizabeth's time, was yet somewhat puzzled by the Parsnip, which he seems to have half suspected to be a variety of the Carrot, but afterwards acknowledges their distinctness. His friend Plat had manufactured bread from Parsnip roots, and he himself believed they were superior to those of the Carrot and Turnip. Turner alludes to the custom of eating Parsnips during the Lenten season. Ray utters a word of warning that old Parsnips might possibly give rise to delirium. Rather slowly the Parsnip came into general use, but for many years only a single cultivated form was to be seen in English gardens. Several varieties, however, had been grown in Normandy and the Channel Islands; one of these has roots of enormous length, and is still made to yield heavy crops for the feeding of cattle. The Parsnip has been highly commended as a fatterer, answering indeed better than its relative the Carrot, yet it is very moderately used for that purpose in Britain; and with many of the Scotch it is a more favourite vegetable than it is to the south of the Tweed.—J. R. S. C.

ROSES NIPHETOS AND SAFRANO.

It would indeed be a poor Rose that had no admirers or advocates, and I felt sure when I penned my remarks (page 104) that someone would be sure to defend the case of that popular variety Niphetos. I wrote of the qualities as winter flowerers, and have no desire to withdraw one word that I have written respecting the merits of these two varieties. I have had abundant opportunities of testing them side by side both in pots and planted out under various circumstances and conditions. It must be understood that by free winter-flowering varieties I mean those that are best adapted to grow and unfold their delicate buds, say from the month of November until the early part or middle of February, which comprise the worst months of the year in this locality where fogs predominate. Rose-forcing is thus conducted under difficulties, and I hope that my friend Mr. Iggulden enjoys a pure bright atmosphere free from the evils which surround us in this neighbourhood.

Niphetos lacks vigour as compared with Safrano, and during the months named will not make growths half so strong or so numerous as those of Safrano; in fact, it will not grow so rapidly or with the same freedom either planted out or grown in pots, under exactly the same conditions. If a variety does not possess vigour of habit it will not produce half so many buds as a stronger variety will do. Growth must be constant in order to yield a continuous supply of buds, and this is the character of Safrano. Mr. Iggulden says, "One good bloom of Niphetos is worth four Safrano buds," but during the winter the former will not produce "good blooms;" they are only buds, and smaller than those of the latter, which will produce fully twice as many, one being fragrant and the other not. To write accurately there is no variety that is really scentless, for all have a slight perfume; but what is the scent of Niphetos, Etiole de Lyon, Capitaine Christy, Magna Charta, Baronne de Rothschild, Countess of Oxford, and many others, compared with that possessed by Safrano, Gloire de Dijon, the Hon. George Bancroft, La France, Bessie Johnson, Marie Baumann, and many others, even when grown under the same treatment?

I freely endorse the editorial remarks (page 195) that there are more blooms of "Niphetos sold in London at the present time than those of any other Rose," and why? Simply because a preference is given to white flowers by the florists, and the price realised for the former would be considerably more than for coloured flowers, however choice, early, or delicate. It is exactly the same with the Rose as the Camellia, for there is no difficulty in disposing of white flowers, often at a very high price, while there is much difficulty in selling red or other colours at less than a third the price of the others.—WM. BARDNEY.

CRYSTAL PALACE SPRING SHOW.

APRIL 4TH AND 5TH.

THE first of the series of horticultural exhibitions announced for the present year by the Crystal Palace Company was held on Friday and Saturday last, and gave hopeful evidence of what may be expected at the later and larger shows. An exhibition so early in the season is quite a novelty, and it was regarded by the projectors almost as an experiment, the success achieved consequently forming an agreeable surprise, and furnished additional encouragement for further efforts. In the arrangement of the exhibits a new departure was also made, for the centre transept from the great organ to the stage was solely devoted to the show, four rows of tables being arranged in parallel lines. The four corners were devoted to the groups, a magnificent semicircular group from the Palace collection occupying the most prominent position at the base of the orchestra. The great advantage of this method was that, though a less extensive effect was produced than under the ordinary system, there was a greater concentration, and visitors were enabled to inspect the exhibits without having to wander half over the Palace. The tables employed, however, would have been greatly improved had they been draped with baize or some material to conceal the tressles, but with this exception the general organisation was all that could be desired, and was highly creditable to the garden Superintendent,

Mr. Head. The later shows will be held outside the Palace in marquees, in consequence of all the available space inside being occupied with contributions to the International Exhibition.

Bulbs.—Several classes were devoted to these, the principal being that for thirty-six Hyacinths, in which two good collections were staged. Messrs. H. Williams & Son, Fortis Green, Finchley, won chief honours with strong plants bearing massive well-developed spikes, the leading varieties being L'Obelisque, King of the Blues, Czar Peter, Gigantea, Grandeur à Merveille, La Grandesse, Garrick, Mont Blanc, and Von Schiller. Mr. J. Watson, Newcastle-on-Tyne, took the second place with smaller but fresh plants. Messrs. Williams & Son were the only exhibitors of thirty-six Tulips, their collection, for which the first prize was adjudged, comprising some fairly good plants, but rather too much advanced. Keizer's Kroon, Joost Van Vondel, Vermillon Brilliant, and Canary Bird were notable varieties. The same exhibitors had the only entries of twenty-four Tazetta Narcissus, and secured a similar award for well-flowered specimens, the varieties being Charles Dickens, yellow petals and orange cup; Sir Walter Scott, white petals, gold cup; Bathurst, yellow petals, orange cup; Grand Monarque, white petals, lemon cup; and Gloriosus, white petals, orange cup.

Cyclamens.—The competing and non-competing collections of Cyclamens formed a strong feature in the Exhibition, the flowers in the majority being remarkably abundant, large, pure white, and richly coloured. For thirty-six plants Mr. H. B. Smith, Ealing, gained the leading position with beautiful examples, some of the plants bearing over sixty flowers, with broad substantial petals. Mr. Hill, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, was second with healthy plants, the flowers being mostly distinguished by their rich shades of crimson. Mr. J. James, Farnham Royal, Slough, took the third place with dwarf free plants. Three other collections were entered in this class, all in some degree meritorious.

Cinerarias.—Four competitors entered the class for twelve Cinerarias, Mr. J. James being an easy first with dwarf compact plants, bearing massive richly coloured flowers of the usual quality distinguishing the Farnham Royal strain. Messrs. J. Carter & Co. were second with smaller plants, bearing neat and diversely coloured flowers. Mr. Hill was third, his plants being rather backward. There was some dispute as to the accuracy of these awards, the second prizetakers protesting that in several cases in the first-prize collection two or three plants were grown together in one pot, and that in this way more than twelve plants were shown. The objection was, however, overruled on the terms of the schedule. In the amateurs' classes Cinerarias were small. Mr. Todman, gardener to H. Hearn, Esq., Upper Tooting, having the best, followed by Mr. Hill and Mr. Wiggins. Three good collections of Lilies of the Valley were entered, each comprising twelve 8-inch pots. Mr. J. Watson was first with very abundant handsome spikes, fifty to sixty in a pot, but the foliage was scarcely enough developed. Messrs. H. Williams & Son were second, also with good flowers; but in this case the foliage was rather too much advanced. Messrs. J. Carter & Co., High Holborn, were third, their flowers being not sufficiently advanced.

Azaleas.—Mr. C. Turner, Slough, was the premier exhibitor of the Azaleas, which were mostly in 8-inch pots and trained in the form of small cones about 2 feet high. They were exceedingly healthy, flowering profusely, and represented a number of superb varieties. Very noteworthy were Comtesse de Flandres, with large rosy crimson flowers; Pucelle de Gand, pure white, large, fine rounded petals; Duc de Nassau, rich crimson, very free and handsome; Duchesse de Nassau, rosy-scarlet; Mdle. Marie Van Houtte, A. Borsig, and Flag of Truce, three excellent double white varieties, together with Roi d'Hollande, very fine; Ceres, Mrs. Turner, and Stella. Mr. H. James, Lower Norwood, was a good second, his plants being of similar size, but globular in form and profusely flowered. The varieties Bernhard Andreas and Alba Apollon, Bijou de Paris, and Roi d'Holland were the best.

Pelargoniums.—Messrs. H. Williams & Son secured the chief position with twenty-four show and decorative Pelargoniums, healthy well-flowered plant of moderate size; Scarlet Gem, Defiance, scarlet; Virginalis, white and crimson; Le Géant, Madame Favart, and Albino, white with crimson feathering, being the best varieties. Mr. C. Turner was second with a less even collection, but Rosetta, purple crimson, very free; Joe, flowers large; Lady Blanche, white with crimson feathering; Mad. C. Koling, white, veined with pink, were notable.

Auriculas were exhibited by Mr. C. Turner, who was awarded the first prize in the two classes for twenty-four show and the same number of Alpine varieties. In both collections the plants staged were very healthy and freely flowered. Amongst the show varieties Beauty, Charles Perry, Glory, Lord of Lorne, Blackbird, Campbell's Green Edge, and Campbell's Confidence were the best, while amongst the Alpines were Troubadour, Tennyson, Unique, Gorton's Diadem, and Corsair; certificates being awarded for several others that are described below.

Only one collection of twenty-four Chinese Primulas was staged, Messrs. Carter & Co. being adjudged the premier award for well-grown plants of their numerous varieties. The colours were rich and varied, the Holborn Blue, Red, Carmine, Vermillion, Magenta, and Pink being in good condition, as were also Rosy Morn, Rosy Gem, and Snowflake. In the amateurs' class Mr. Todman was the only exhibitor, being awarded the first prize for rather small plants.

Amaryllises were shown by Mr. Hill and Mr. W. White, gardener to C. Dorman, Esq., The Firs, Laurie Park, but the flowers were very small in both cases, though the colours were bright. Mr. Wiggins had the only dozen pots of Mignonette, gaining the first prize with large dense heads of flowers tight to twelve in a pot.

Groups.—Three effective collections were entered in the class for a group of stove and greenhouse plants arranged in a space of 100 square feet, and being placed at the corners of the centre transept they contributed much to the beauty of the Exhibition. Messrs. J. Laing & Co., Forest Hill, were awarded first honours for a very bright arrangement of bulbous plants, Azaleas, Heaths, Amaryllises, Orchids, Caladiums, Ferns, and Palms, the richness and variety of colour in this group undoubtedly giving it the preference. Mr. H. James was accorded the second prize for a group that in regard to lightness, elegance, and absence of formality was considered by many superior to the first; but although there was a good number of healthy well-flowered Orchids with bright colours and elegant Palms, the group as a whole presented a less showy appearance. Mr. C. Turner was third with a light and

graceful but slightly thin group of small Azaleas, Gloxinias, Abutilons, Palms, and Dracenas, edged with Isoplepis.

Miscellaneous.—By far the most extensive and brilliant collection of plants was that from the Crystal Palace houses. This occupied the whole space in front of the orchestra, and comprised some hundreds of admirably grown bulbous plants, such as Hyacinths, Tulips, Lachenalias, and Narcissus, with Azaleas, Lilies of the Valley, Cytisus, Polygonatums. Without doubt this was one of the most handsome groups ever produced in the Palace grounds. On the opposite side, at the base of the stage, Messrs. Barr & Son, Covent Garden, had one of the largest collections of Daffodils they have yet shown, and it was certainly the most tastefully arranged. There were eight boxes each 9 feet long, filled with moss, in which the bottles containing the flowers were plunged to the necks, a few Isoplepis and other foliage plants being employed to break the uniformity of colour. Hundreds of varieties were represented in all the sections, a few clumps of Anemone fulgens being added to diversify the effect. Mr. T. S. Ware, Tottenham, contributed a choicest selection of the best varieties of Daffodils, together with flowers of several other hardy plants, such as Chionodoxas, Muscaris, Anemones, and Primulas. Messrs. Carter & Co. had a fine group of Cinerarias with neat flowers of many rich colours, showing the merits of the strain; Hyacinths, Tulips, Deutzias, and Spiræas were also employed liberally with good effect, and a collection of choice hardy plants were staged. Messrs. A. Waterer, Woking, showed an interesting collection of hardy Azaleas, mostly double, and representing some fine shades of yellow and pink. Primroses and Andromedas were similarly good. Mr. J. H. Brack, Sevenoaks, sent two boxes of Rose blooms; Messrs. Hooper & Co., Covent Garden, showed a plant of a new tree Carnation named C. H. Hooper, pale yellow ground, edged with crimson, very free; and Mr. J. Mayo, Oxford, showed two boxes of Rose blooms. Mr. H. B. Smith, Ealing, contributed an extensive collection of vigorous profusely flowered Cyclamens. Mr. R. Clarke of Twickenham also having a large group of Cyclamens in similar condition, Mr. Wiggins staging a group of Cinerarias and Cyclamens. To all of these extra prizes were awarded.

Certificates were awarded for the following plants:—

Auricula Douglas's Conservative (Turner).—A white edge show, small pip, paste very broad, black body colour, truss of eleven flowers.

Cyclamen Rose Gem (Hill).—Previously described.

Cineraria Marmion (James).—A rich velvety-crimson self, the flowers broad and massive.

Cineraria Lord Beresford.—A purple-crimson self, lighter in the centre. Very bold and effective.

Auricula Mungo McGeorge (Turner).—A shaded Alpine, pale gold centre, crimson body colour. Large pip and neatly formed.

Auricula Douglas's Mrs. Moore (Turner).—A green-edged variety, pip of great size, over 1½ inch across, broad white paste, black body colour. Truss very strong, containing nine flowers.

Cineraria Prince of Wales (James).—A rosy crimson self, flower very large and rich in colour, broad rounded florets.

Cinerarias Lottie Williamson and Lord Wolseley (James).—Previously arranged.

Cineraria Kate Williamson (James).—A rich dark blue self, slightly reddish at the base of the florets. Very distinct.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, William Payne, Esq., F.R.H.S., in the chair, the following candidates were unanimously elected Fellows—viz., the Hon. Mrs. Bagwell, Henry Spring Bean, Rev. Albert Dearn, Theodore Duka, Mrs. Duka, Thomas Farmer Hall, A. J. Hollington, and William Jenkins.

— THE Committee appointed at the DAFFODIL CONFERENCE to consider the desirability of renaming the garden varieties of Narcissus in accordance with resolution passed, met on Wednesday, the 2nd inst., at South Kensington, and entered into the matter fully. The result was that popular names were adopted for all the varieties shown, and Mr. J. G. Baker was entrusted with the task of formulating the decision of the Committee, which will be ultimately published.

— MANY readers will learn with much regret that MR. EDWARD MILNER, the noted landscape gardener, died at Norwood on the 26th ult. During the past two or three years Mr. Milner has been engaged as principal of the Crystal Palace School of Gardening; but previously he had performed much excellent work in reorganising old gardens, designing and laying out new ones in all parts of England, but especially in the midland and northern counties. On the Continent also numerous gardens bear testimony to his skill and good taste.

— MR. C. GREEN writes:—"It may be interesting to the readers of the Journal to know there is a very fine specimen of RHODODENDRON NUTTALII at Daylesford Gardens, imported, we believe, from its native habitat, the Himalayan Mountains. The plant is in every way magnificent. It is 12 to 13 feet in height, and at the present time is bearing

forty noble trusses of its magnificent blooms in whorls of from five to seven. Each of its large bell-shaped flowers would hold half a pint of water. We believe there is some difficulty in flowering this variety, but it is known to have flowered at Daylesford abundantly every spring. It makes a grand conservatory plant, and ought to be in every collection."

— THE ORCHARD HOUSES in Mr. Rivers' nursery at Sawbridgeworth are now extremely beautiful, fruit trees of all kinds, that are so successfully grown, being densely covered with blossom; fine crops of fruit will follow in due time, failures being practically unknown at Sawbridgeworth.

— Two fine specimens of the beautiful RHODODENDRON AUCKLANDI are now flowering in Mr. Major's collection at Cromwell House, Croydon. Several trusses are expanded, each consisting of six large fragrant campanulate flowers, one before us being 5 inches in diameter and exceedingly handsome.

— AMONGST the numerous handbooks announced by the Committee of the International Health Exhibition Committee is one entitled the "FRUITS OF ALL COUNTRIES," by Mr. W. T. Thiselton Dyer, M.A., which is likely to possess considerable interest.

— CHIONODOXA NANA and C. SARDENSIS, though pretty, will not bear comparison with the true "Snow Glory," C. Lucilike, for the flowers are much smaller and less showy. C. sardensis appears to differ very slightly from the better known species, except in the flowers being smaller and the blue colour running through the petals to the centre of the flower. C. nana is similar, but it is probable that under good cultivation both will improve.

— GARDENING APPOINTMENTS.—Mr. William Cooper, late foreman at Sandbeck Park, Rotherham, has been appointed gardener to the Earl of Meath, Kilruddery, Bray; Mr. Edwin Beckett, late gardener to J. P. Currie, Esq., Sandown House, Esher, Surrey, has been appointed gardener to H. Hucks Gibbs, Esq., Aldenham Park, Elstree, Herts.

— THE Ealing, Acton, and Hanwell Horticultural Society's twentieth ANNUAL SHOW will be held in the grounds of the Manor House, Ealing, on Wednesday, July 9th, and the seventh Autumn Show at the Drill Hall, Ealing Dean, on November 5th. At both Exhibitions, in addition to the numerous prizes offered by the Society, many valuable special prizes are contributed by friends of the Society in the neighbourhood.

— ALL admire the charming PRIMULA ROSEA, but some cultivators have experienced a difficulty in growing it successfully, and this is generally due to keeping it too dry. Upon the rockwork it will grow and flower, but how great a difference there is between plants in such positions and those in a semi-marsh, but where there is no offensive stagnation. This indeed is the main secret of its culture—keeping the roots cool and moist; the growth is then much more vigorous, the foliage of a fresh healthy green colour, the flowers are larger, and the rosy hue richer.

— "E. R." writes:—"Permit me to give a word of praise to the beautiful HYACINTH L'OBELISQUE, which of a large collection has pleased me more than all. The colour of the well-formed bells is a delicate creamy yellow, very pure; the fragrance is quite distinct and most agreeable; the spike massive and well-proportioned. One very fine bulb has now four spikes expanded, one of great size, and the others but slightly smaller, and the plant has been the admiration of all my friends. Can any of your readers tell me anything as to the origin of the variety?"

— BEFORE us are a number of FANCY PRIMROSES grown by Mr. Cannell at Swanley, which for size, substance, and diversity of colour we have not seen excelled. All the colours usually seen in self flowers appear to be represented, while many of the blooms are beautifully mottled, flaked, and marbled with white on a crimson ground. We also find the quaint Galligaskins amongst them, and a laced Polyanthus remarkably bright and with clearly defined margins. Such Primroses as these referred to could not fail to be appreciated in gardens in which these favourite flowers are cherished.

— AT the Daffodil Conference last week two of the most distinct and beautiful varieties were NARCISSUS INCOMPARABILIS ALBUS MILNERI, and VOLUTUS J. G. BAKER. The first is a particularly handsome

flower, well-proportioned, the petals broad, rounded, and pale creamy white in colour; the crown is much expanded, of a rich orange shade, but lighter at the base. The other is one of the Pseudo-Narcissus type, of a clear delicate lemon tint, the crown large, even, with the margin slightly reflexed, the petals being of equal length and the same colour. Another very effective variety that is worth growing extensively is N. incomparabilis pallidus aurantiacus, which has neatly formed flowers, the petals pure white, the crown of moderate size, but of a particularly bright orange colour, which contrasts very markedly with the other portion of the flower. For cutting and decorative purposes generally it would be most useful. Amongst the varieties of N. poeticus none excels the beautifully formed ornatus, the flowers being most symmetrical.

— "THE SCIENCE MONTHLY" for April contains a very interesting article upon "The Odour of Plants," in which the subject is exhaustively treated, special reference being made to the nature of the odours and their services to the plants.

— WE have received from Mr. B. S. Williams, Holloway, a box of LACED POLYANTHUSES, the produce, we presume, of flowers raised from seed. As such they are excellent, and although some of them may be faulty, as judged by the exacting rules of the florist, they are as good as can be desired for garden decoration, and for one Polyanthus specialist there are five hundred growers and admirers of these flowers which render beds and borders bright and cheerful at this period of the year.

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 16th instant, at 7 P.M., the following papers will be read:—"On the Origin and Course of the Squall which capsized H.M.S. *Eurydice*, March 24th, 1878;" by the Hon. Ralph Abercromby, F.R.Met.Soc. "Waterspouts and their Formation;" by Capt. J. W. C. Martyr. "The Weather Forecasts for October, November, and December, 1883;" by Cuthbert E. Peek, M.A., F.R.Met.Soc. "On certain Effects which may have been produced in the Atmosphere by Floating Particles of Volcanic Matter from the Eruptions of Krakatoa and Mount St. Augustin;" by William F. Stanley, F.R.Met.Soc., F.G.S.

— THE SHROPSHIRE HORTICULTURAL SOCIETY still holds a foremost rank amongst provincial organisations. By the balance sheet of last year we find that the income of the Society for 1883 was £2200, and the expenditure £1600, leaving a profit on the year of £600. The Society has spent over £1000 in town improvements, such as new gates, handsome band stand, &c., and still has a reserve fund of nearly £2000. This is the work of only nine years. As an instance of the popularity of this Show, we note that in addition to cheap tickets sold previous to the day amounting to £396, no less a sum than £1055 was taken at the turnstiles on the second day alone. Nearly 45,000 persons were present both days. The Show this year will be held on August 20th and 21st.

— A CORRESPONDENT sends the following cutting:—"In certain portions of the south-west United States is a shrub which grows abundantly, and particularly on the borders of the Colorado Desert, where it is so luxuriant that it acts as a barrier to the drifting sand. This is the CREOSOTE PLANT (*LARREA MEXICANA*), and is a sure sign of a barren soil, for it flourishes where nothing else will, and although it gives the scenery a beautiful verdant appearance it has such a strong repulsive odour of creosote that no animal will touch it. Even for fuel it is almost useless, as it can scarcely be made to burn. The odour is due to a resinous matter, of the value of which the Pimos Indians have long been aware, as they collect and form it into balls, which they kick before them as they journey from one point to the other of the trail. This exudation has been shown by Mr. Stillman of California to be identical with the gum-lac of India, and he believes that the lac is secreted by the insect found in it, and that it is not, as usually supposed, the result of an exudation of the plant caused by the punctures of the insect. The Entomologist of the Bureau of Agriculture does not consider that the insect itself is the same as the *Carteria lacca*, the incrustations of lac on the creosote plant not being so thick as that produced by *C. lacca*; but as it presents a similar system of large and complicated excreting organs he has named it *C. larrea*."

— THE schedule of the NATIONAL CHRYSANTHEMUM SOCIETY for 1884 is now issued, and in addition to full particulars as to the classes and prizes at the thirty-eighth Exhibition, to be held in the

Royal Aquarium, Westminster, November 12th and 13th, it contains lists of the officers, honorary members, and subscribers, together with the names of the prizetakers at the previous show and the balance sheet for the past year. From the latter we learn that the Society has a balance in hand of 4s. 8d., the amount of reserve fund invested in consuls up to December, 1883, being £61 10s. 11d. The prizes are of the usual liberal character, all the classes being open to exhibitors from all parts of England, except nine, termed Metropolitan Classes, which are confined to persons residing within three miles and a half of Shoreditch Church. The winner of any prize in the Chrysanthemum classes is entitled, on application to the Hon. Secretary, to receive a specially designed certificate recording his success, the cost of which will be defrayed by a fund instituted for the purpose. The leading class is that for forty-eight blooms, twenty-four incurved and twenty-four Japanese, the first prize for which is £15, £10 being given by the Society, and £5 by Mr. N. Davis of Camberwell. The other prizes in this class are £7 and £4. It should be added that the Society undertakes to defray a portion of the cost of carriage of the plants.

MANURES FOR PLANTS IN POTS.

It may be roughly assumed that there are two classes of cultivators who err in the matter of applying manure to plants in pots. One do not as a rule apply any manure after the plants have been potted; the other begins to supply with manurial solutions long before the plants require it, and continues to do so as long as the plants are able to bear up against the treatment. These are extreme instances; but there are many who do not go to such extremes, who yet fail to grasp the true reason for the application of manure with water. There are, it is true, soils so poor in quality, so deficient naturally in the constituents of plant food, and so incapable of retaining these when applied, that it becomes necessary to add manurial agents with the water at a much earlier period after potting than is necessary or even wise in the case of other soils. Therefore no hard-and-fast line can be laid down on this matter; and hence we find one writer advising the application of liquid manure when the roots begin forming round the outside of the ball, while another tells us to wait till the roots have become much more numerous.

The mode of potting the plants must not be overlooked as an agent in timing the first necessity for liquid manure. Firm potting as a rule and the employment of small pots give better results all round than an opposite practice. A comparatively small pot filled firmly with soil has the plant food more concentrated and lasts longer than if the soil were loosely placed in the pots. However, in most classes of soil the time arrives sooner or later when manure must be applied. It then remains to consider the best manurial agents and the best mode of applying them. Many gardeners have their favourite mixture, to which they cling with unswerving fidelity. Sheep, deer, cow or horse manure, singly or in mixture, are all employed in the preparation of liquid manure. Soot and guano are occasionally used, but often with a feeling of uncertainty.

The reason why manure has to be employed for plants in pots is simply because the roots have extracted all or nearly all of certain elements necessary to the health of the plant, and any extra applications of manure must be given in order to meet these wants. Nitrogen is commonly the first element to be used up; hence it is that occasional pinches of Peruvian guano, sooty water, or a little nitrate of soda or sulphate of ammonia, cause the plant to assume fresh vigour and life. These not only supply a want, but by some unknown law enable the plant to appropriate other plant foods, which before they were incapable of doing. Liquid manures from animal excreta act in much the same manner as those already mentioned. Of the very necessary though small potassic elements they are all deficient, and after a time flowering plants fail to respond to manurial agents not containing this element.

Surface applications of mineral manures is the cleanest and most generally efficacious mode of furnishing plant food to the soil. An effective and cheap dressing may be composed of superphosphate of lime 4 lbs., chloride of potash 3 lbs., and sulphate of ammonia 2½ lbs. As much of this mixture as will lie on a shilling applied to flowering plants once a week throughout the summer months will give the best results. Should there appear to be a tendency to flower too much at the expense of growth apply sulphate of ammonia alone (or guano will do), for two weeks or so, and fresh growth will be excited at once. For Ferns nothing better than guano and soot dissolved in the water can be given, so also for fine-foliage plants generally, though an occasional pinch of the above mixture will be of advantage.

Irregular watering will stultify the benefit derivable from any kind of manure.—R. P. BROTHERSTON.

BROWALLIA JAMESONI.

OLD favourite plants are occasionally re-introduced to notice by nurserymen or amateurs, and those who thus rescue really meritorious plants from the neglect into which they have been allowed to fall deserve as much public credit as the first introducers. In the past few years many such forgotten plants have been brought before the Royal Horticultural Society at Kensington, and the subject of the present note is one of the most remarkable and handsome of these restored favourites.

Thirty-six years ago Messrs. Veitch & Son introduced *Browallia Jamesoni* from Peru, where it had been found by their collector growing in wood at an elevation of 6000 feet above sea level. It attracted some attention then, and was figured in one or two botanical works, but seems



Fig. 69.—*Browallia Jamesoni*.

to have escaped the attention of the general cultivator, and, except in a few large collections, the plant is now rarely seen. When, therefore, Messrs. H. Cannell & Son exhibited a specimen at the Royal Horticultural Society's meeting, March 11th of the present year, it was quite a welcome surprise to many, and a certificate was granted for it without any hesitation.

As we have previously stated, the plant is suggestive of *Rondeletia speciosa* in habit and the form of flowers, and requires training to a few stakes, allowing the heads of flowers to hang slightly downwards, as they are seen to better advantage in this way (fig. 69). The corollas are about an inch across the mouth, very bright orange in colour, slightly lighter in the centre, and are borne in close heads at the extremity of the branches.

Any light rich soil suits the plant, which thrives in a greenhouse temperature with very little care.

EUCHARIS AMAZONICA.

THERE is scarcely a stove house now that has not the *Eucharis* as one of its inhabitants. Still, judging from the inquiries often made, it would appear that it is difficult to flower. As we have been very successful in growing and flowering this lovely plant we shall as briefly as possible describe our mode of treatment. To begin with, the bulbs must be a good size, say about 8 inches in circumference and thoroughly well matured before they can be expected to flower, so therefore we must turn to the growing treatment first.

Soil.—After trying various composts we find a mixture of three parts of good fibrous loam, with one part of half-decomposed cow dung suit it well. When the roots are not so numerous as we would like, as is often the case with young bulbs, instead of the cow dung we add the same quantity of leaf mould. This appears to encourage the young bulbs to make roots rapidly.

Pots.—The size of pot is a matter of taste, as the plants thrive in almost any size, from a 6-inch pot upwards. When they are grown for cut flowers we prefer 12-inch pots, with from nine to eleven bulbs in a pot. In every size of pot the drainage is ample, never less than 3½ inches of crocks in the largest size.

Potting.—We pot our *Eucharis* annually some time in February, turn them out on to the potting bench, break up the ball, disentangle the roots, take off the offsets, doing all this very carefully, as the roots are easily damaged, potting all again in the mixture mentioned above, spreading the roots as much as possible amongst the soil, allowing one-half of the bulb to remain above the surface, pressing the compost moderately firm. Some growers advocate the root-bound system to cause them to flower, but we are averse to this method of treatment for the following reasons. First, when allowed to remain undisturbed, instead of growing and preparing the bulb to flower again they form offsets; secondly, they descend or become buried among the soil; the third fault is the worst, the drainage gets out of order.

General Culture.—After the potting process they are plunged into the stove house bed, which gives a temperature of 75°, the heat of the house being 65°, letting it run up to 80° as the season advances. Very little water is given for some time—a dewing daily—until it can be seen that growth has fairly commenced. After this has taken place water is more freely given. As soon as it can be ascertained that the roots are plentiful liquid manure is given (sheep's droppings is our favourite), commencing with it rather weak for a time. As soon as they appear to have made their growth water is again gradually withheld, at the same time raising them out of the bed. Here they stand for a few days, when they are removed to a cooler structure with a temperature of 50°. A vinery where the fruit has been cut suits them well when resting. Water is given very sparingly, only as much as will keep the leaves erect. The resting period lasts from two to three months. After this they are returned to their former quarters, being then thoroughly soaked with tepid water, and thus treated we find them flower very well. We have *Eucharis candida* in flower at the present time, having received the above treatment.—J. J. C.

MAGNOLIA CONSPICUA.

CALLING at Mr. John Fraser's nursery at Leyton, Essex, recently, my attention was directed to a very fine specimen of the showy *Magnolia conspicua*, which was flowering most profusely against the front of the office. It is much to be regretted that this showy early-flowering species of *Magnolia* is not more generally met with in gardens. Extensive preparations had been made previous to my visit by Mr. Fraser to secure a large stock of this by layering. As this plant was covering a large extent of wall and had attained a great height, layering in the ordinary way could not be easily practised. To overcome this difficulty a framework of wood forming several stages was erected. On each of these stages were pots filled with soil, plunged in moss. The shoots were then layered in the usual way by conducting these through the soil in the pots. By adopting this ingenious method Mr. Fraser will no doubt secure a large stock of this showy *Magnolia*.

In one of the houses in the same nursery I also saw a large collection in flower of a very superior strain of *Cyclamens*. The collection embraced many hundreds of very healthy and well-grown specimens. These, I was informed, were grown for affording seed—a great speciality in this establishment.—S.

WATERING, SHADING, AND VENTILATING ORCHIDS.

IF Orchids are to be grown well the cultural matters which form the heading of these notes must each be carefully attended to. The different aspects, construction of the house, ventilation, and heating

arrangements all have a bearing on the subject. The following remarks are intended principally for the benefit of younger gardeners, some of whom think there is a mystery attached to Orchid-growing, though the mystery is easily solved by common sense and close attention. If they notice the season of growth and of rest they will find no difficulty in growing the majority of Orchids, but a knowledge of geography and meteorology of the different countries the Orchids inhabit will assist considerably in their culture.

I will first give a few remarks on the management of "cool Orchids." As to the proper aspect of the house for these, there is a difference of opinion. Some prefer the "north" lean-to, others the span-roof or three-quarter span facing north. I suspect each have their good qualities, and have served those who have recommended them. The north lean-to certainly has advantages in the south of England, whilst in the north, and especially around the large manufacturing towns, Manchester for instance, the span-roof running north and south would be the best. I have grown good cool Orchids in the south of England in a span-roof house, but it was rather of heavy build. The ends were north and south, but it was during the autumn, winter, and spring that the plants succeeded best; and we often longed for a north lean-to during the summer, as they had to be continually shaded. In the winter the little sun that we have certainly does not reach the north lean-to, whilst if the plants were grown in a span-roof house they certainly would receive the benefit of it, and the three-quarter span would have a share. So in the south, a three-quarter span facing north is recommended, and a span-roof in the north.

Ventilation must be regulated, so that the plants are not exposed to a draught. A close atmosphere is fatal to the well-doing of cool Orchids. Shading must be attended to, so as to keep off direct sunshine during the spring, summer, and early autumn months; but when there is no direct sunshine on the house remove the shading at once. The ends and sides (if there are side lights) should be attended to when required. As to watering, give sufficient to *Odontoglossums* of the *O. crispum* type and *Masdevallias* to keep the sphagnum in a healthy growing condition. If the sphagnum is healthy the Orchids will generally be the same. A good guide as to the time to supply water is when the tips of the sphagnum have a white tinge, but are not parched. Water the plants in the afternoon during the summer, and morning during the winter. Keep abundance of moisture about the house during favourable weather, and syringe between the pots twice a-day, but on wet days or during severe weather in winter do not have much moisture in the house. If other Orchids are grown in the cool house they must be treated accordingly. Some of the *Oncidiums* are grown in this house; they will only require a plentiful supply of water whilst in active growth, but when at rest must by no means be allowed to get dry. Cool Orchids require no artificial heat during the summer, and during the winter only when the temperature falls below 45° or during wet close weather, when a little heat in the pipes will keep the atmosphere in a suitable condition.

Occupants of the *Cattleya* or intermediate house prefer a warmer and drier atmosphere than cool Orchids. The shading must be according to the aspect or build of the house, and a good guide is not to expose the plants to direct sunshine during the spring and summer, ventilating whenever it can be done safely. If only *Cattleyas* are grown in this house they will need less shading than when the collection is a mixed one, and in the latter case it will be advantageous to have the shading in two parts, so that it can be drawn up earlier over the *Cattleyas*. If the house is in two divisions so much the better, as the *Cattleyas* or other Orchids that succeed with the same treatment may be grown in one division. The temperature best suited for this house is 55° as a minimum during the winter, with a proportionate rise during the spring and summer. *Cattleyas* do not require so much water at the roots as the majority of Orchids. Large specimens only need a supply once or twice a week during the growing season. Small plants require more frequent attention; they must not be kept too wet or too dry. Whilst at rest *Cattleyas* require very little water, only sufficient to prevent shrivelling. *Odontoglossum vexillarium* and *O. Phalaenopsis* succeed well in this house, but must be placed at the shaded end. These *Odontoglossums* must never be allowed to become dry at any season. On the other hand, those of the *O. grande* and *O. Insleyi* type must be kept quite dry after they have made their growth. Some of the *Cypripediums* succeed well here. These must never be allowed to become quite dry whilst at rest. The majority of the *Oncidiums* succeed best in this house, and require a plentiful supply when in growth, when at rest only sufficient to keep them from suffering; and many other Orchids too numerous to mention succeed here. The *Cattleya* house or intermediate house is a very good one in which to rest and flower the majority of *Dendrobiums*, but whilst they are making their growth they succeed in a warmer and more moist house.

The occupants of the East India house or warm stove comprise *Angræcums*, some of the *Cypripediums*, *Dendrobiums* whilst making

their growth, *Odontoglossum Roezlii*, *Phalænopsis*, *Saccolabiums*, *Vandas*, &c. If the seasons of growth and rest are watched the watering of these plants is soon mastered. The *Angræcums* require a plentiful supply when in growth, but must never be allowed to become too dry whilst at rest. This applies to the majority of Orchids except *Dendrobiums*, which like to be quite moist when in growth, but must have a thorough rest. For instance, if *Dendrobium densiflorum* and *O. thysiflorum* are kept moist whilst at rest they will fail to bloom. The *Cypripediums* in this house will require a plentiful supply of water when in full growth. Abundance of moisture is needed during the growing season, and shade from direct sunshine. The temperature best suited for this house is 60° to 65° as a minimum during the winter, with a proportionate rise during the spring and

February, 1883, it grew freely and produced many flowering buds from the axils of the leaves on flower stalks about 1½ inch long. The buds were very small, hardly so large as hemp seeds, and it continued to produce them through the summer, when it was removed into a cool greenhouse, but none of the buds ever swelled above the size I have mentioned, and one after another fell off. I shall be glad to know if others have found the same difficulty in blooming this plant, and if not, what system of cultivation they pursued to obtain a more satisfactory result.—AN AMATEUR.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

APRIL 2ND AND 3RD.

THE spring Show of this thriving Society was held in the large Waverley Market, Edinburgh. The prizes offered were divided into seven sections, five

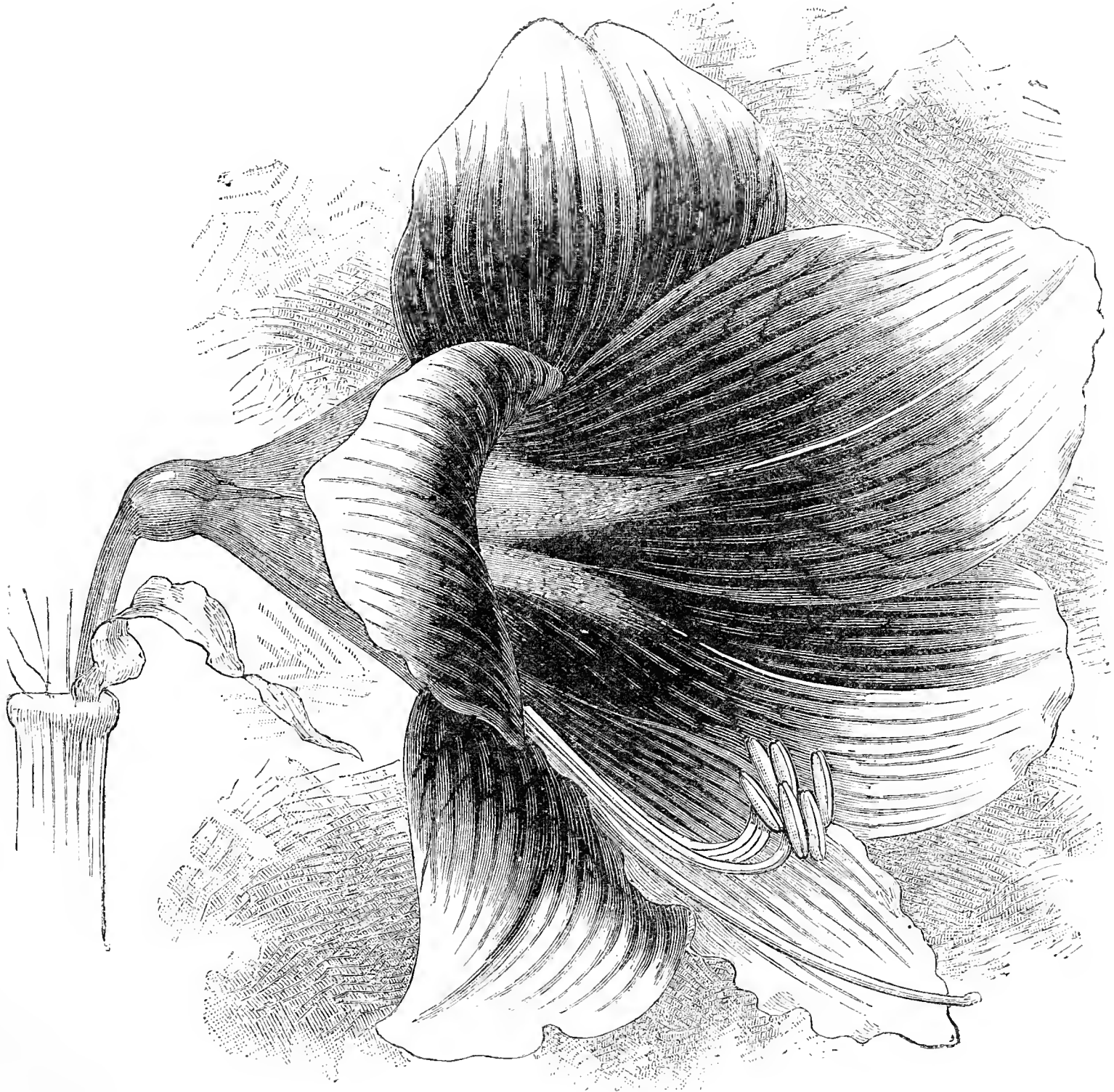


Fig. 70.—AMARYLLIS MARS. (See page 278.)

summer. Each house is benefited by 5° extra fire heat by day when required, but the temperature should never be allowed to rise too high by fire heat, as it causes the plants or compost to become dry; besides, it is not healthy for the plants.—A GROWER.

CRINODENDRON HOOKERIANUM.

CAN any of your correspondents tell me anything of their experience in growing the plant *Crinodendron Hookerianum*, otherwise *Tricuspidaria hexapetala*, described on page 98, vol. vi., of your Journal? I purchased a small plant from Messrs. Veitch as one of their novelties in November, 1881. It showed signs of suffering in a cool greenhouse in the winter following, but being placed in a vinery when the Vines were forced in

of these being for gardeners and amateurs, the remaining two for nurserymen. The first five were for plants, Hyacinths, &c., cut flowers, fruits, and vegetables. The two classes set apart for nurserymen were for plants Hyacinths, and cut flowers.

PLANTS.—One of the main features in the plant classes were the prizes for a table of plants 20 feet long by 5 feet wide, arranged for effect. Only two competitors entered, Mr. Grossart, gardener to J. Buchanan, Esq., Oswald Road, being placed first, many well-flowered Orchids being represented, such as *Dendrobium Wardianum*, *D. Jamesianum*, *D. thysiflorum*, *Odontoglossum Alexandræ* and *cirrhum*, *Cattleya Trianae*, &c., with a few Palms and other fine-foliage plants, making a bright arrangement. The second table, from Mr. A. Paul, Gilmore Place, was rendered less attractive by the formality of the arrangement; some good Orchids were, however, also shown, and a number of small plants of *Primula nivea* were very pretty.

Prizes were also offered for tables of spring-flowering plants. Mr. W. Begg, Wardie Lodge, Granton, was first with a very choice selection, *Fritillaria meleagris alba* and *Trillium grandiflorum* being especially noteworthy. Mr. C. Smith, Restalrig House, was second. For twenty forced plants in bloom Mr. Priest, gardener to the Marquis of Lothian, Newbattle Abbey, was first, and Mr. McClure, Trinity Grove, second. The Azaleas were large and finely flowered, Mr. Patterson, gardener to J. Syme, Esq., Millbank, being first for four plants with round-headed densely bloomed specimens, and Mr. Paul second. The other specimens were small, but the four in 8-inch pots from Mr. Patterson were beautiful little globes of bloom. The same cultivator gained the premier position for six stove and greenhouse plants in flower with two good Azaleas, three Heaths, and an *Anthurium Schertzerianum*. Mr. Paul was again second. Greenhouse *Rhododendrons* were small and hardly worthy of note. For four *Rhododendrons* (hardy) Mr. Grieve, gardener to Miss Falconer, Faleon Hall, was first with large well-bloomed specimens. Heaths were, like the *Rhododendrons*, in small sizes. Orchids were not numerous, but some large specimens were set up. For six distinct sorts two collections were staged, one from Mr. Paul, and the other from Mr. Grossart, equal first prizes being awarded to them. Mr. Paul had a very large plant of *Caelogyne cristata*, a grand piece of *Cymbidium eburneum* with about thirty open flowers, C. Lowi with a dozen spikes, a fine form of *Cattleya Trianae*, *Dendrobium densiflorum*, and *D. nobile*. Mr. Grossart's best plants were *Dendrobium Wardianum*, *Cymbidium Lowi*, a fine variety, and *Ada aurantiaca*. For three plants Mr. W. Dougal, gardener to W. Sanderson, Esq., Talbot House, was first, having as one of the trio the rarely seen *Odontoglossum Phalaenopsis*. Mr. A. Fraser, Canonmills Lodge, was second. For one plant Mr. Patterson, Millbank, was first with *Dendrobium nobile*.

Ferns were not large, the best being from Mr. McKinnon, gardener to Viscount Melville, Melville Castle. Mr. Paul showed three fair *Gleichenias*, for which the first prize was awarded. Fine-foliage plants were small, and do not call for remark.

HYACINTHS.—A table of these with massive spikes attracted much attention. For twelve plants Mr. Pearson, gardener to Lady Lucy Dundas, Beechwood, was first with strong even plants, King of the Blues, Sultan, Lord Derby, and Koh-i-Noor being especially fine. Mr. Sims, gardener to C. Kindsay, Esq., Ridge Park, Lanark, was a close second with an extra fine Koh-i-Noor in his lot; and Mr. McLure, Trinity Grove, third. Mr. Laurie, gardener to Mr. Mackay, Inveralmond House, Cramond, was first for eight, all good, Mr. Sims being again second, and Mr. McLure third; for six Hyacinths Mr. Laurie was also first. For six for amateurs Mr. Robert Stewart, Haddington, worthily occupied first position, Mr. A. Whitelaw, Musselburgh, being second. Tulips made a great display. For six pots Mr. Begg, Wardie Lodge, took the first place, Mr. R. Grossart being second. Mr. R. Gibson, Woolmet, Dalkeith, was first for six pots, and Mr. Cameron, gardener to the Rev. Ch. Dornele, Cargillfield, second. For six *Polyanthus Narcissus* Mr. S. Graham, Kilrock Lodge, was first, and Mr. Pearson second. Mr. Grossart was the only exhibitor of six pots of garden *Narcissus*, and obtained the first prize. The *Cinerarias*, *Primulas*, *Hoteias*, hardy Azaleas, &c., were all fairly well represented. Some good *Deutzias* were set up, Mr. Grieve, Falcon Hall, having the best. *Polyanthuses*, *Primroses*, and *Anriculas* were of poor quality. Lily of the Valley was fine, Mr. J. Bald, Cannon House, being first for three plants, and Mr. R. Johnston, Woolmet, first for one. The *Mignonette* was also extra fine; Mr. Greig, Graigend Park, Liberton, being first for two dwarf plants, and Mr. Richardson, Morningside, first for two standards. For six Roses Mr. Patterson was first with medium-sized specimens with fine blooms, and Mr. McIntosh, Boston House, second with rather tall Tea Roses.

NURSERYMEN'S PLANTS.—A table of plants 40 feet long and 10 feet wide was the principal class in this section, and Messrs. Ireland & Thomson, Cragleith Nurseries, took the premier position with one of the richest displays ever staged in Edinburgh. Fine-foliage plants were very sparingly employed, only a few Palms, Azaleas, *Rhododendrons*, *Azalea mollis* forming the foundation of the group, choice flowering Orchids being lavishly employed, *Cattleya Trianae*, *C. amethystoglossa*, *Odontoglossum Alexandrae hybrida*, *O. Alexandrae* in variety, *Lycastes*, *Dendrobiums*, thyrses-flowered, wreathed in spikes and racemose, *Cypripediums* in variety, and *Oncidium Rogersi* being the chief plants. Messrs. T. Methven & Sons, Leith Walk Nurseries, were second; and Messrs. B. Laird & Sons, Parkhill, third with arrangements chiefly composed of ordinary decorative flowering and fine-foliage plants. The last-named firm took first prize for four greenhouse *Rhododendrons* with large specimens; for twelve hardy *Rhododendrons*, also large and fine; for six Palms; for twenty-four Hyacinths, finely developed; for bride's bouquet; and for six buttonhole bouquets. In addition to the first prize above noted Messrs. Ireland & Thomson were first for twelve hardy *Rhododendrons* in 9-inch pots, for three *Crotons* and three *Dracenas*, for twelve table plants, for six new or rare plants, and for a collection of cut stove or greenhouse plants. Messrs. Methven & Son were first for twelve *Coniferae*, Messrs. Cunningham, Fraser, & Co. being second, the latter firm taking first place for twenty hardy plants. Mr. Brysen, Helensburgh, had the best twelve cut Roses, W. Gordon & Son being first for twelve *Ma échal Niel*, while Messrs. Todd & Co., Edinburgh, had the best hand bouquet.

CUT BLOOMS.—These were staged in Messrs. Mackenzie & Moncur's conservatory, of which note is made further on. The Roses formed a large exhibition and generally fine. For twenty-four Mr. Jas. Walker, gardener to J. M. Richard, Esq., Clarendon, Linlithgow, was first with neat good-sized buds, mostly Teas. Mr. Bowman, gardener to Lord Deas, Pittendreich, Lasswade, was a very close second indeed; and Mr. McIntosh third. For twelve Mr. Shiach, gardener to J. MacKnight, Esq., Cranford, Lauriston Castle, was first with a very fine lot of buds; Mr. Cumming, gardener to Miss Ivory, St. Royne, second. For twelve *Gloire de Dijon* Mr. Walker took the first place with large globular buds. For the same number of *Maréchal Niel* Mr. Pearson showed by far the grandest blooms staged, these being large and well coloured; Mr. Dow, gardener to Sir D. Baird, Newbyth, was a good second. *Camellias* were largely shown. The prizes for twelve bunches of flowers of stove or greenhouse plants brought good competition. Mr. Priest was first, showing *Dendrobium fimbriatum oculatum*, *D. densiflorum*, *Vandas*, *Lycaste Skinneri*, &c., with *Clematis indivisa lobata*, fine, and *Cantua dependens*. Mr. McIndoe, Hatton Hall, Guisborough, Yorks, was a close second, *Rhododendron Veitchii* being fine. Some of the bouquets

were beautiful, the first-prize table and hand bouquets, each from Mr. Grossart, being especially fine; Mr. McLure, Trinity Grove, was a good second for each of these.

FRUIT.—This was fairly well shown, a large number of well-kept Apples being brought together. Three Pine Apples were staged, Mr. Johnston, Glamis Castle, being first; and Mr. McIntyre, The Glen, second. For two bunches of Black Grapes Mr. McKinnon, Melville Castle, was first with remarkably well-kept Alicantes, and Mr. McIndoe second with Lady Downe's. Mr. Dow, Newbyth, was first for thirty Strawberries, President large and well coloured, and for six pots of Strawberries. For twenty-four kitchen Apples Mr. Potter, Seacliffe, North Berwick, was first, and Mr. Bowman second. For twenty-four dessert Apples Mr. Brunton, Gilmerton, Drem, was first; and Mr. McKelvie, Broxmouth Park, Dunbar, second. To Mr. Brunton, Gilmerton, a special award was made for a collection of sixty-two sorts Apples. The best varieties in the prize collection were King of the Pippins, Blenheim Pippin, and Cellini. In the other collections were good examples of Fearn's Pippin, Court-Pendu-Plat, Winter Strawberry, Dutch Mignonne, Cornish Aromatic, Stone Pippin, Ribston Pippin. The best examples of kitchen kinds were Warner's King, Mère de Ménage, Allanbank Seedling, Gloria Mundi, Dumelow's Seedling, Beauty of Kent, Ecklinville Seedling, Yorkshire Greening, and Northern Greening. In Mr. Brunton's collection were some notable kinds, as also in another collection of fifty sorts without indication from whence they came, and to which a special prize was also awarded. They deserved a special note. The prize for twenty-four Pears brought fruit of poor quality.

VEGETABLES.—These were very fine and fairly well represented as to quantity. For a collection of twelve kinds Mr. Potter, Seacliffe, showed an excellent lot for the first prize. These comprised good Leeks, Cabbages, Rhubarb, extra fine Broccoli and Brussels Sprouts, French Beans, Potatoes, Carrots, Mushrooms, last season's Onions, Peas, Seakale, and Carrots. Mr. Bowman was a good second, and Mr. Robertson, Hartrigge, Jedburgh, third. For six Leeks Mr. Potter was again first with extra fine specimens. Mr. Smith, Restalrig House, had the best six Broccoli, Mr. Bowman the best Seakale, and Mr. Stewart, Newhaven Road, the best collection of salads.

MISCELLANEOUS EXHIBITS.—Amongst these were the fine table of mixed plants from Messrs. Godden & Son, a collection of plants from the Lawson Nursery Co., a pretty arrangement of ordinary market plants from Messrs. Todd & Co., who also showed a fine wreath and crop of cut flowers. Messrs. Mackenzie & Moncur, Upper Grove Place, showed a conservatory 30 feet by 18 feet, with ventilating gearing on a new patent principle which they have introduced. Many ventilators having been wrenched from their places during the past windy weather this system has been devised to obviate this in the future. The motive power is given by an endless screw to a toothed pinion on the ventilating shaft. At equal distances along the shaft toothed pinions are attached, which lift or shut the ventilator at pleasure by acting on a toothed segment bar fastened to the ventilator. It is considered that no wind will be able to move a ventilator, whether open or shut, with this arrangement fitted on them.

It only remains to say that this was the finest spring Show ever held by the Society since they began holding them in 1855 with a prize list of £22, but this one of 1884 amounts to £350. The Exhibition was opened by one of the municipal officials, and was throughout the two days crowded with visitors, excursion trains being run from many towns.

CENTRADENIA ROSEA.

THIS beautiful plant is of easy culture, and ought to be grown by every one who can command a minimum temperature of 50° through the winter months. Coming into flower, as it does, about the middle of February and lasting well into April, it enlivens stoves and warm conservatories, its rosy white flowers and long narrow leaves, green on the upper surface and deep red on the under surface, rendering the plant very striking; moreover, it has a graceful drooping habit, of dwarfish growth, which makes it most suitable for the dinner-table, and other decorative purposes. It will flower as freely in 5-inch pots as it will in 8 or 10-inch pots.

These Mexican *Melastomads* should be propagated at once by inserting cuttings of half-ripened shoots in a compost of sandy loam and peat in well-drained pots, plunging them in a brisk bottom heat of about 75° to 80°. The temperature of the propagating pit or house should be the same when the cuttings are well rooted, which will be in three weeks; they should then be potted singly into 2½-inch pots, shading and keeping them in a close moist house until they are well rooted into the new soil, when they may be removed to a lighter and more airy house and placed on the shelves near the glass. When they have filled these pots with roots they should be transferred into 4-inch pots, using some good turfy loam and peat, with a dash of sand. The pots should be well drained, for this *Centradenia* is a moisture-loving plant. When they again become root-bound they should be shifted into 6 or 8-inch pots, in which they may be allowed to bloom, or if thought desirable they may be grown and flowered in larger pots, but 6 and 8-inch pots we find the most useful for all ordinary purposes.—G. J. WARREN, *Balcombe Place, Sussex*.

THE "DENNIS" SYSTEM OF PATENT GLAZING.

AMONGST the various exhibits at the Building Trades Exhibition at the Agricultural Hall, London, a glass structure glazed on a new system has attracted attention. It is not another of the many examples of glazing without putty, for putty is used, but is quite protected from the weather. The method is the invention of Mr. T. H. P. Dennis of Chelmsford, who, although only now introducing it to the public, has had a structure so glazed on trial for many months with the object of testing its merits or noting its faults. The result of the trial is that he feels fully justified in bringing it out as a system of great practical usefulness, and by which his reputation will be sustained.

As will be seen by the diagrams, the glass is pressed against the sash-

bars by cork cams, or rather against the putty between the glass and under side of the bar. It is thus both firm and watertight, while the putty is completely protected from the weather. Glazing is done from the inside of the house—in fact, it cannot be done from the outside, and is so simple that any ordinarily intelligent workman can fix it, while squares can be removed from and placed in any part of the roof that may from accidents need repairing. But although putty is used, and is

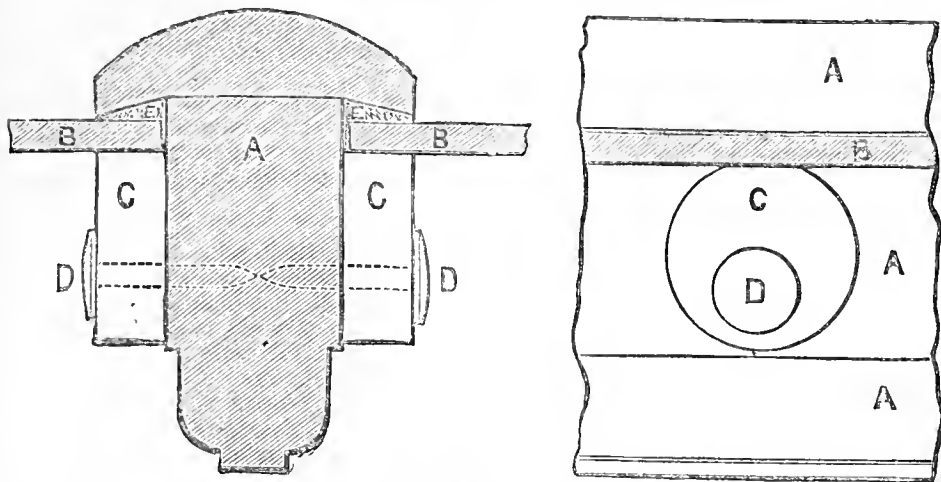


Fig. 71.—Wood Sash-bar with Putty.

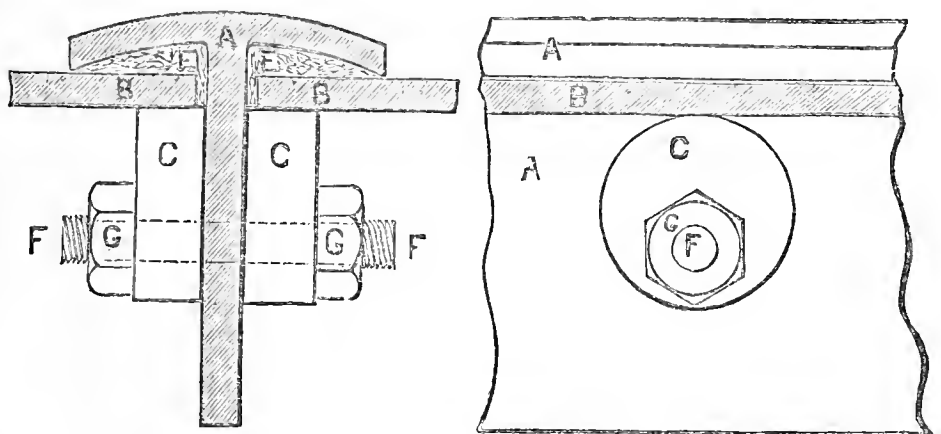


Fig. 72.—Wrought-iron Sash-bar with Putty.

considered an advantage, the glass can be fixed without putty if preferred. The system is quite distinct from other methods of glazing, and appears to possess the merits of simplicity with efficiency. The references to the diagrams are—A, sash-bar; B, glass; C, cork cams; D, copper nail or pin; E, putty; F, screw pin; G, nut of same.

CHRYSANTHEMUMS FLOWERING IN APRIL.

THE conservatory and greenhouse without Chrysanthemums during the dark months of early winter would be void of the great charm of the season, but it is rarely that we find them decorating the greenhouse within such a short time of Easter. We have two plants now in flower of Fair Maid of Guernsey, and it affords me great pleasure to forward a flower of each plant.

The plants are from cuttings taken in January, 1883. They were placed in 6-inch pots during March, and kept in a cool frame until the usual time of potting. Finding, however, we had more than we required for pot culture, the plants now in flower were planted out in spring on a border with an east aspect. There they remained all through the summer months. They were stopped twice while on the border, and were taken up and potted about the middle of September. This gave them a severe check, but after standing a few weeks under a north wall they eventually recovered, and left outside as long as safe from frost, being taken into a cool house towards the end of October.

They were kept back as much as possible, and were not taken into the greenhouse until after Christmas. Flowers were produced in the beginning of January. These being constantly cut a second growth was made, upon which they are now principally flowering, and I do not hesitate in saying they will continue flowering up to Easter.—J. S. B.

[The flowers received are as pure and fresh as we usually see them in November and December.]

ROYAL HORTICULTURAL SOCIETY.

APRIL 8TH.

VARIED and interesting in a more than usual degree was the Kensington meeting of Tuesday last, Daffodils being still in the ascendant; but in addition there were rich stores of Azaleas, new and beautiful, Rhododendrons in abundance, Orchids and miscellaneous plants being similarly numerous.

FRUIT COMMITTEE.—Harry J. Veitch, Esq., in the chair. Present, Messrs. John Lee, G. Goldsmith, S. Lyon, J. Willard, G. T. Miles, W. Denning, R. D. Blackmore, and G. Bunyard. The exhibits before this Committee were comparatively few. A bronze Banksian medal was awarded to Messrs. T. Rivers & Son, Sawbridgeworth, for a collection of sixty dishes of well-

kept Apples, all being remarkably fresh and sound. Very fine were Blenheim Pippin, Seek-no-Further, Peck's Pleasant, Gloria Mundi, Beauty of Kent, Dumelow's Seedling, Melon Apple, Newtown Pippin, Baldwin, Annie Elizabeth, King of Tomkin's County, and Mère de Ménage. Mr. Goldsmith, Hollenden, Tonbridge, had seven dishes of Apples; Winter Queening, Northern Greening, and Court Pendu Plat being fresh and sound. Mr. G. Fennell, The Gardens, Fairlawn Park, Tonbridge, sent a dish of Brabant Bellefleur, which were commended for their freshness. Mr. Witney, Brayfield House, Newport Pagnel, Bucks, showed good examples of the dwarf early Cabbage All the Year Round with white solid hearts. He also sent samples of a neat Seakale named The Pearl. From the Royal Horticultural Society's Gardens a large collection of Rhubarb was sent, similar to that described at a previous meeting.

A first-class certificate was awarded to Messrs. Veitch & Son for—

Ellam's Dwarf Early Spring Cabbage.—An excellent early variety, with a close solid head, somewhat sugarloaf-like in shape.

FLORAL COMMITTEE.—Section A.—Rev. G. Henslow in the chair. Present, Messrs. T. Moore, J. Laing, F. R. Kinghorn, J. Woodbridge, H. Herbst, James Hudson, H. Williams, H. Ballantine, J. Dornay, J. O'Brien, and E. Hill. Section B.—Shirley Hibberd, Esq., in the chair. Present, Messrs. H. Bennett, W. Bealby, G. F. Wilson, J. James, G. Duffield, J. Douglas, H. Cannell, and W. B. Kellock. Messrs. J. Veitch & Sons, Chelsea, contributed a group of superb Amaryllises, several of which were certificated, but amongst those that were not so honoured were the following:—Warrior, brilliant scarlet, white central stripe, four flowers in a head; Adelina Patti, white, streaked with rich rose crimson, neat flower, four in a head, very beautiful; Gustave Doré, intensely dark scarlet, three flowers in a head; Washington, bright light scarlet, white central stripe, four flowers in a head; Lothair, dark scarlet, the colour running down to the centre. The collection was shown chiefly to show the diversity of colouring that is being obtained in this class of plants, and it is rather strange that the Committee declined to certificate one of the most distinct yet raised—namely, Adelina Patti, described above. A choice collection of new plants was also contributed, comprising the neat white-flowered *Dendrobium barbatulum*, *Dendrobium Devonianum album*, white, blotched with yellow; *Cælogyne ocellata*, white, with an orange lip; *Cypripedium microchilum*, the white-flowered hybrid between *C. niveum* and *C. Druryi*; *Lælia flava*, with neat yellow flowers; and *Cypripedium venustum*, a hybrid between *C. argus* and *C. villosum*, with flowers much resembling the latter parent. A profusely flowered plant of *Azalea indica Caldwelli ignea*, which has neat reddish hose-in-hose flowers, was very attractive, and the mauve-purple *Azalea ledifolia* fl. pl. from Japan was noteworthy.

Mr. B. S. Williams, Upper Holloway, contributed several Amaryllises and Azaleas, amongst the latter being some striking varieties—Madame Estelle Cavelier, rich deep red; *Bignoniæflora*, rose, double, free; *B. punctulata flore-pleno*, small, white streaked with rose and red, full and free. Henrich Heine, rich, almost violet purple, double, and extremely profuse, were some of the best. A good *Cattleya Mendelli gigantea* was noteworthy, and a small plant of *Angraecum dependens* with pure white flowers and long spurs. Messrs. Barr & Son, King Street, Covent Garden, were awarded a bronze Banksian medal for a pretty group of Daffodils, arranged in a similar style to the collection at the Crystal Palace Show—namely, in bottles concealed by moss. There were fine masses of *incomparabilis plenus*, *concolor expansus*, *lorifolius Emperor*, *albidus Leedsii*, *Burbidgei grandiflorus*, and *bicolor maximus*. Several new varieties were also staged and certificated. Mr. Woodbridge, The Gardens, Syon House, Brentford, sent three or four scapes of *Hymenocallis macrostephana* with from six to nine flowers each, large, pure white, and exquisitely fragrant. A cultural commendation and vote of thanks were accorded to Mr. H. Bennett, Shepperton, Middlesex, for a dozen blooms of Her Majesty Rose, in grand condition, very substantial, excellent in form, of good size (some being $4\frac{1}{2}$ inches across), and of a most lovely delicate rose tint. Most of the blooms were shown at the Crystal Palace on the preceding Saturday have evidently lasted well. Mr. T. Sibbald, Bishop Auckland, sent a pan of *Herniaria glabra* and *aurea*, the ordinary dark green and golden forms.

M. Louis Van Houtte, Royal Nursery, Ghent, Belgium, exhibited a choice group of new Azaleas, representing some richly coloured varieties, both single and double. Certificates were awarded for nine of them—a sufficient indication of their merit. Very seldom indeed is an exhibitor so fortunate. Of other varieties not certificated the following were noteworthy:—Mrs. B. S. Williams, double white with a few pink spots; Sir C. Spencer Wells, single, intensely deep red; T. W. Moore, double, dark red, free; and John Hawkesworth, double, salmon red, very large and bold. Mr. R. Dean, Raneleigh Road, Ealing, contributed a choice collection of hardy flowers, for which a vote of thanks was awarded. They included some good examples of Bedford Yellow Wallflower, *Myosotis dissitiflora* Perfection, double *Anemone coronaria*, and *Primula White Queen*. A vote of thanks was accorded to Mr. Herbst, Richmond, for a collection of *Narcissus poeticus reflexus*, fresh and bright. Mr. C. Turner, Slough, had a box of Auriculas raised by Mr. J. Douglas. Several were certificated and of others the following were good:—Miss Taplin, Alpine, shaded violet purple; Seepre, Alpine, dark shaded crimson; and Cecilia, rich shaded crimson, Alpine. A vote of thanks was accorded to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, for a handsome plant of *Cypripedium levigatum*, with three spikes of three flowers each. Sir Charles Strickland, Bart., Hildenley, Malton, Yorkshire, was accorded a vote of thanks for two plants of *Cattleya citrina*, each bearing a fine flower. A cultural commendation was awarded to Mr. S. Cook, gardener to D. B. Crawshaw, Esq., Rosefield, Sevenoaks, for a plant of *Dendrobium Cambridgeanum*, with three growths bearing from five to eight flowers.

A silver-gilt Knightian medal was awarded to Messrs. H. Lane & Son, Great Berkhamstead, for a fine group of Azaleas and Rhododendrons, which unfortunately, owing to the limited space, were somewhat crowded. The Rhododendrons were remarkable for their dwarf compact habit and large dense heads of variously coloured flowers. A bronze Banksian medal was awarded to Messrs. J. & J. Hayes, Lower Edmonton, for groups of decorative Pelargoniums and the Fairy Rose longifolia, which has bright crimson double flowers produced in great abundance. A silver Banksian medal was awarded to Messrs. Cutbush & Son, Highgate, for a fine group of greenhouse plants. *Eriostemons*, *Darwinias*, Azaleas, Heaths, and similar plants were particularly well shown. A silver-gilt Banksian medal was

awarded to Mr. T. S. Ware, Tottenham, for a large group of choice hardy flowers, Primulas, Anemones, Daffodils and Muscaris. Especially notable were some pans of the bright blue *Anemone appennina* and its white variety. Messrs. Shuttleworth, Carder & Co, 191, Park Road, Clapham, exhibited a pan of *Masdevallia Shuttleworthii* bearing some dozens of flowers, also a fine *Odontoglossum Wilckeanum*.

First-class certificates were awarded for the following plants:—

Odontoglossum crispum guttatum (Sir Trevor Lawrence).—Flower very neatly formed but rather small, white ground heavily spotted with dark brown.

Oncidium cucullatum giganteum (Sir Trevor Lawrence).—A beautiful variety with unusually large flowers, the sepals and the petals very dark, and the lip a uniform mauve purple tint, and a few darker spots near the base.

Cypripedium ciliolare (Sir Trevor Lawrence).—Somewhat suggestive of *C. superbiens*, the dorsal sepal broad, veined with green and tinged with purple, the petals edged with dark hairs, suffused with purple, and spotted with a much richer shade of the same colour. The lip is neatly formed and dark purple.

Odontoglossum Shuttleworthii (Shuttleworth, Carder & Co.).—A very distinct form of the *O. Alexandræ* type, with a lip like *O. Wilckeanum*, the sepals covered with brown to near the tips, the petals broad and heavily spotted with the same colour.

Phaius irroratus purpureus (Veitch).—A hybrid between *Phaius grandifolius* and *Calanthe vestita*, very interesting and pretty. The sepals and petals are narrow, white, somewhat like the *Calanthe* parent, the lip like the *Phaius*, of a rosy crimson colour.

Amaryllis Virgo (Veitch).—Flower of moderate size, scarlet with a white centre bar in each petal. Four flowers in a head.

Amaryllis Zitella (Veitch).—A most distinct and beautiful variety, the flowers rather rough but distinct in colour, white ground streaked and flushed with a distinct and pretty shade of rose.

Davallia Mariesi cristata (Veitch).—An elegant form of this well-known Fern, the fronds of which terminate in a neat bunched crest.

Adiantum strictum (Williams).—Previously described.

Narcissus bicolor J. B. M. Camm (Barr).—Very neat and softly coloured, petals creamy white, and crown $1\frac{1}{2}$ inch long, pale lemon yellow, margin slightly revolute.

Narcissus incomparabilis sulphureus Queen Sophia of the Netherlands (Barr).—A handsome variety, remarkable for an excessively long name, and beautiful form. Flower 3 inches in diameter, petals broadly elliptical, pale yellow. Crown shallow and saucer-like, $1\frac{1}{4}$ inch across, rich orange with a wavy margin.

Narcissus incomparabilis James Dickson (J. Dickson & Son).—A magnificent variety with flowers 4 inches in diameter, the petals $1\frac{1}{4}$ inch broad, elliptical, pale yellow. The crown is $1\frac{1}{4}$ inch deep and as much in diameter, pale orange, the margin waved.

Narcissus Leedsii Queen of England (Barr).—A beautiful variety, flowers $3\frac{1}{2}$ inches in diameter; petals white, elliptical; crown pale clear yellow, three-quarter inch deep, and 1 inch across, with a slightly recurved margin.

Auriculas Mungo, St. George, and Conservative (Turner).—Previously certificated.

Azalea Princess of Wales (W. Nicholl, Lower Merton).—Pure white, full flowers, the margin of the petals slightly undulated.

Azalea Souvenir du Prince Henri (Van Houtte).—Double, rosy crimson, very handsome, full, the petals much waved. Very free, and of good habit.

Azalea Souvenir du Duc d'Albany (Van Houtte).—Single, a magnificent variety, the flowers pure white 5 inches in diameter, the petals broad and undulated on the margin. The finest white variety yet obtained.

Azalea Mlle. Marie Stockman (Van Houtte).—Double, pure white, almost like a *Petunia*, very full, substantial, and handsome.

Azalea Baron Nathaniel de Rothschild (Van Houtte).—Double, violet purple, very distinct in colour, extremely free and beautiful.

Azalea Mr. B. S. Williams (Van Houtte).—Single, flowers very large, 4 inches in diameter; the petals rounded, of a rich rosy crimson colour.

Azalea John T. D. Llewelyn (Van Houtte).—Double, very handsome variety, broad rounded petals, white faintly suffused with pink, with spots at the base of deep rose.

Azalea Comte de la Torre (Van Houtte).—Single, well-formed flower, white suffused with pink, the upper petals heavily spotted with red.

Azalea Comte de Paris (Van Houtte).—Single, broad rounded flower, pink, the petals edged with a broad white band.

Azalea Comte Andrien de Germiny (Van Houtte).—Single, of a peculiar reddish colour, the upper petals purple.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair.

Canker in Apple Trees.—A communication was read from Mr. Plowright on a form of this disease as caused by *Nectria ditissima*. He observed that Sphaeriacei usually attack dead organisms, but there are some exceptions, as *Valsa parvularia* on living Oak, and many of the *Dothidiaceæ*. The specimens sent were from several localities, but in almost every case the cankered part bore the fungus, and which was not found anywhere else. He likewise forwarded drawings illustrative of the growth of the fungus. When the parasite gains an entry into the bark of a medium-sized branch it at first causes the death of the bark and subjacent wood to only a limited extent. The bark cracks concentrically. In the cracks and upon their edges the perithecia are most commonly found. They are most abundant in those cases in which the devitalised area has become surrounded by an enlarged and swollen margin of healthy bark. Further details will be given when the paper and figures are published in *extenso* in the *Gardeners' Chronicle*.

Cecidium Fabæ.—Mr. Plowright also sent specimens of Bean plants with this fungus artificially produced. They were infected with the germinating teleutospores of the *Uromyces* on the 6th February; on the 29th the spermatogonia began to appear. It was not until the end of March that the perfect *Cecidium* was developed.

Apples Diseased by Fungi.—Mr. Murray and Mr. Smith reported that the Apples brought to the last meeting by Mr. MacLachlan were attacked by *Septorium Ralfsii*.

Potato Culture to Prevent Disease.—A plan of the cultivation carried on under the direction of the Sub-Committee appointed at the last meeting was shown, while Mr. Murray informed the Committee that every Potato

had been carefully examined, and about twelve rejected that were found to be diseased.

Gymnosporangium Juniperi.—Mr. A. Smee exhibited branches of Juniper badly diseased. It was suggested that experiments should be carried out to impregnate the Hawthorn and *vice versa*. He also brought some malformed *Calceolarias*, which were referred to Rev. G. Henslow for examination and report.

Primulas.—Col. Clarke exhibited the results of crossing the true florists' *Polyanthus* crossed by the garden Primrose. This cross, recrossed by the former, gave innumerable varieties of colour in the seedlings. He observed that he had often tried to cross the Cowslip with the Primrose, but had always failed.

Agricultural Implements from Naagar Hills, Assam.—Dr. M. T. Masters exhibited a number of rude implements used by the natives, who were almost unknown to Europeans, consisting of a hand-plough, a large round-ended knife, used also for village fights, and wooden hoes, together with samples of the native produce—*e.g.*, Chick Pea, Rice, &c.

LECTURE.—The Rev. G. Henslow first called attention to a group of Australian plants exhibited by Mr. Cutbush, containing species of *Correa* known as native Fuchsias, as they somewhat resemble that plant, but belong to a very different family; the leaves of some species are used as tea. Species of *Boronia* and of *Leptospermum*, the latter of the Myrtle family, and therefore allied to the Gum Trees. *L. lanigerum* grows to 30 feet, and furnishes wood for the spears of the natives, while *L. scoparium* supplies the hard and heavy wood called Manauka wood in New Zealand. *Genetyllis*, called *Hedaroma* by Lindley, and also *Darwinia*, is remarkable for the mimicry in its flowers; for while the latter are minute and inconspicuous they are surrounded by coloured bracts in the shape of a Tulip. A species of *Epacris* furnished a comparison with *Erica* or *Heath* to illustrate their "representative" character. Though apparently resembling one another, yet their floral structure is different; and while *Erica* is found at the Cape, *Epacris* characterises New Holland. The lecturer remarked on two characteristic features of the foliage of Australia—its harshness in some, and the habit of hanging vertically in other plants, so that the latter affords little or no shade. The dryness of the atmosphere is accountable for the harshness, and the object gained by those plants with vertical foliage is probably the same as that acquired by the so-called "sleep,"—namely, to avoid the ill effects of radiation at night. This is seen in species of *Acacia*, which generally in Australia have no blades but only a flattened leafstalk or phyllode, the edges of which point sky and earthwards. He next called attention to a remarkable "bigener" of Mr. Veitch—*viz.*, a cross between two genera, *Phajus grandifolius* and *Calanthe vestita*. The latter Orchid (*"Botanical Magazine,"* 4671), discovered by Dr. Wallich in India, and flowered at Messrs. Veitch's establishment first in 1848. *Phajus grandifolius* (*"Flore des Serres,"* &c., vii., p. 259), is from China, with yellow orange sepals and petals, the labellum alone being purple. In the bigener the flower is white, as in *Calanthe*, but the labellum of a rose colour. *Angræcum dependens*, exhibited by Mr. Veitch, is remarkable like other species of this genus for the long spur; that of *A. sesquipedale* is usually over 1 foot long. Tropical Africa and Madagascar supply them, and it is remarkable that it cannot be fertilised except by some insect with a proboscis as long as the spur. One species, *A. fragrans*, furnishes a material for a tea in its leaves, which are used in Bourbon, Mauritius, and in Paris for pulmonary complaints.

A species of *Acacia* with spinescent stipules called for remarks on the peculiar modifications which those organs undergo, and the lecturer described the remarkable "Bullock's-horn" Thorn, as *A. sphærocephala* is called, of Nicaragua, and the peculiar habit of ants which live in them, and are supplied with food by the shrub in the form of honey in honey pits on the petiole, and oily "fruit bodies" at the apices of the leaflets. These ants keep others off which would strip the tree of its foliage.

Plumbago and *Statice* furnished remarks on the peculiar method of securing fertilisation secured by the former genus, both being of the same family. The ovule is suspended by a curved funiculus, and the tissue of the style is prolonged downwards till it reaches the micropyle, thus conveying the pollen tubes directly into the latter. Many species are excessively acrid in this juice, such as *P. scandens*, called *Herb du Diable* of San Domingo. Beggars use the juice for raising blisters, as they do in England with the juice of *Ranunculus scellaratus*. He next called attention to a hybrid raised by Mr. Veitch between *Cypripedium niveum* and *C. Druryi*, in which the yellow colour of the latter had disappeared but the narrow lip retained, the flower of the hybrid being white.

AZALEAS AT SHIRECLIFFE HALL.

THE Azalea house at Shirecliffe Hall, Sheffield, the residence of H. E. Watson, Esq., J.P., is now quite ablaze with a rich profusion of fine blossoms of varied colours and markings. Every year at this season the house is noted for a good display, but probably on no previous occasion have the plants been so laden with flowers as at the present time. They are all of a bushy character, and have been grown from small nursery plants, but have not yet attained a large size, the largest specimens in the collection being $4\frac{1}{2}$ feet through. Some, of course, are more floriferous than others, but the majority are masses of rich colours, quite dazzling, and many have their foliage completely hidden by the thickly clustered blossoms. All are very healthy and vigorous, and show unmistakably that unremitting attention has been given to their requirements. Shirecliffe unfortunately is situated too near the manufacturing portion of the town, and the large volumes of noxious gases emitted daily from the numerous furnaces and huge chimneys which are dispersed thickly over that suburb, with the assistance of the fumes of a neighbouring gasworks, are destroying all vegetation except the most robust and hardy kinds. The beautiful Oaks that for years were such an ornament to Shirecliffe and surrounding district are fast dying in consequence of the poisonous state of the atmosphere. Those at Shirecliffe are nearly all dead. The successful cultivation of many plants under glass is therefore conducted at a great disadvantage, but the health and beauty of these Azaleas prove that they are plants adapted for town life.

The old variety *A. indica alba* still finds favour here, and for delicacy and purity of colour it is not excelled by any other variety in the collection. Three or four plants, about 4½ feet in height and breadth, are well flowered, and though the individual blooms are smaller and the petals narrower than most newer varieties, they are light, elegant, and more beautiful than many larger-flowering varieties. Another white variety—*Mdlle. Maria Lefebvre*—is just opening its blossoms, and those fully expanded are about 4½ inches in diameter, pure white, and of good substance. This is a splendid variety and presents a striking contrast to the one just mentioned. *Reine Cleopatra* is all aglow with an abundance of rich magenta-coloured flowers, and is very beautiful. *Superba*, a small plant, about 3 feet through, is so thickly covered with fine flowers that they have not sufficient space to expand properly, and this occurs in other specimens. *Stella*, *Jean Vervaenc*, *Lizzie Tillery*, *Cedo Nulli*, *Countess of Beaufort*, *Gloire de Belgique*, *Dr. Moore* (a most charming variety), and *Roi Leopold* are each covered with well-shaped flowers of good substance and colours. *König Wilhelm* is covered with rich deep rose blossoms very double, and associated with the single varieties is very striking and beautiful. *Apollo* is one of the most showy and effective white varieties grown here; two or three specimens are notable for the size and substance of their numerous flowers. Other varieties in this house of equal merit are *George Loddiges*, *Mdme. Louis Van Houtte*, *Bernard Andreas alba*, *Countess of Flanders*, *grandis*, and *Charmer*. I also noticed a small plant of the *Amœna* type (*Princess Maude*) covered with blooms that afforded a good contrast with the large-flowering varieties. A plant of the new variety *Flambeau* is just opening its buds, but its chief recommendation appears to be its rich deep colour, and in this respect I do not think it has an equal, but the flowers are inferior both in size and width of the petals. It is to be hoped, however, that it will ultimately become, through the skill of the hybridiser, the parent of a variety possessing the richness of its colour with superior blooms. Disbudding *Azaleas* is recommended by some authorities, but it is not practised here, every bud being allowed to remain, and with good results.

At one end of the house there are two fine Orange trees growing luxuriantly in tubs 2 feet square, laden with large numbers of fine expanded flowers and opening buds, that fill the house with rich fragrance. Looking up the middle of the stage over the gorgeous masses of rich colours these trees form an appropriate background. They produced good crops of excellent fruit last year, and promise an abundant one this season. All flowers are enhanced in value and more attractive if richly perfumed, and as the *Azaleas* are devoid of this quality, where Orange trees are not grown a few pots of *Mignonette* placed amongst them when in blossom would render the houses in which they are grown both fragrant and pleasant. A batch of fine *Cyclamen* up one side of the house are just going out of flower after a long season of beauty. The seeds were sown on the 3rd of March, 1883, and have produced fine healthy corms. This season's blooming commenced in the early part of last November, and continued for a period of nearly five months, many of the plants having borne 300 fine flowers each, and for a considerable time about fifty have been opened at a time. The other side of the house is partly occupied by a batch of *Strawberries* in pots that are in good health and promise to yield a crop of luscious fruits that will outrival even the Orange blossom with their delicious and tempting fragrance.

The whole is highly creditable to the head gardener, Mr. J. Udale, and is a proof of his ability and skill; his success may in part be accounted for by the fact that he never appears to be satisfied to rest on his oars and glide with the stream, but is anxious each year to produce better results than he accomplished the previous season. "I hope to do better next year" seems to be his motto, and it might be taken up by others with advantage to all.—J. H. S.

RHODODENDRON VEITCHIANUM.

I ENCLOSE for your opinion a single bloom of a seedling *Rhododendron*, raised from *R. Veitchianum*. There were four in the truss. I have raised several seedlings from *R. Veitchianum*, and though none excels the parent, they will be very useful varieties. I have had a pyramid plant of *R. Veitchianum* in flower for two months, bearing nearly two blooms, and the trusses very large, many having four blooms each. Cuttings of this fine plant have struck very readily with me, and are making vigorous growth, small roots from the main stem being the best, and it saves the flowering wood of the plants.—G. R.

[The flower received was quite flaccid. Though not superior to the parent, it is evidently a pretty variety worthy of preservation.]



KITCHEN GARDEN.

WORK in the vegetable garden must not be neglected this month, as on timely attention to it depends in a great measure the success of the year's vegetable supply. Sowing and planting must be the

order of the day. Wet weather may hinder this, but nothing else should be allowed to do so.

Asparagus.—Reading Giant and Connover's Colossal are splendid varieties, and all who wish to raise young plants of them should sow the seed now. Any light rich soil will suit them. Sow the seed in rows 1 foot apart. Open the drills 2 inches deep and fill with old potting or sandy soil. We sow 2 ozs. of seed annually at this time, and have hundreds of roots from it which come in to make good the plantations broken into every winter for forcing. Many heads from the old roots are now showing through the ground, and quantities will be ready for cutting by Easter. It is when at this stage of growth we have seen it much benefited by stimulants, and we always give them now. We mix salt and guano in equal parts, and shake a small handful over each crown when it is raining. This is soon washed down to the roots and does much good. It is applied fortnightly until the plants are fully in growth, or indeed until cutting is discontinued.

Beetroot.—A short row or two of this may be sown at once to supply early roots. The Egyptian Turnip-rooted is the earliest of all.

Parsley.—Where there is no sign of plants from the seed sown in February sow again in another situation. A supply of this is absolutely necessary, and failure must be guarded against.

Kidney Beans.—A few of these may now be sown on a south border. They must have a free and open soil and a sunny situation. They are the most tender crop in the garden in spring, and they must be treated as such. Our first sowing is generally made at the base of a wall, and they answer well there. We have lately found Cooling's Ne Plus Ultra to be one of the earliest dwarf Beans. The drills for the reception of the seed should not be more than 3 inches deep, and the covering should be light and friable.

Broccoli.—Sutton's Late Queen is again coming in with us in fine condition. Broccoli in general should now be sown. All are put in at the same time. Some think that autumn varieties should be sown earlier than those which do not become useful until the spring, but it is not so; the variety and not the time of sowing produces a succession. Veitch's Self-protecting Autumn is the best of all for use from the end of October until the new year. Then comes Backhouse's, Cooling's Matchless, Carter's Spring, and Sutton's Queen. These are our main varieties. A good patch of seed of each should be sown, either in rows or broadcast, as they will only remain in the seed ground until they are large enough to transplant.

Savoy.—Sow a quantity of the Green Globe variety.

Kale.—This should also be sown, and so should the main crop of Brussels Sprouts.

Carrots.—The main crop should be sown as soon as possible. Ground which was heavily manured last year will be most suitable for them. A dressing of soot, salt, or lime forked in now will benefit them more than anything, and assist greatly in keeping away grubs. James's Scarlet Intermediate is the most useful for a main crop. Sow in drills 2 inches deep and 15 inches apart. Cover and roll down firmly.

Cauliflower.—All early plants in frames should now be planted out. Nothing but rich ground will produce fine heads. Planting between Pea rows is an excellent plan to secure shelter for early plants. Those which do not grow much, but "button" prematurely, should be drawn up at once, and fill their places with others. Sow successional crops. Webb's Mammoth and Veitch's Autumn Giant, if sown now, will give a supply from August until the Broccoli is ready.

Potatoes.—Take the lights off frames on fine days. Cover at night when frost appears. Early-planted ones in the open are now pushing through the soil. Frost would ruin them, but protection must still be seen to. By drawing the soil well up to and over them they may be kept from harm for a long time. Where this cannot be done use Spruce or Laurel branches to protect them from frost and cutting winds. Finish planting late crops.

Celery.—Transplant seedlings into boxes or beds where they can have a gentle heat. If placed 3 inches apart they will grow into bushy plants previous to being transferred to the trenches. Turnip-rooted Celery comes quicker to maturity than the tall sorts, and it is equally good for stewing or flavouring.

Clip Box edgings. Hoe down and remove all weeds from paths and vegetable quarters, and have everything in the vegetable garden neat and attractive.

FRUIT-FORCING.

FIGS.—*Early Trees in Pots*.—The fruit of the early varieties, such as Early Prolific and Early Violet, will soon show signs of ripening, when the supply of water must be gradually reduced, and syringing in their case must cease; but Brown Turkey, Negro Largo, and White Marseilles will need a little more time, and to these give liquid manure twice a week and syringe once or twice a day. Ventilate freely, but avoid currents of cold air, for much as the admission of air improves the texture of the foliage and the quality of the fruit, cold draughts cripple the foliage and are highly injurious. When the days are bright and the wind cold it is advisable to turn off the heat early in the morning, so as to allow the pipes to get cool and lessen the necessity for much ventilation, turning on the heat again at closing time. The night temperature should now be kept at 60° to 65°, 65° to 70° by day from fire heat, and keep between 75° and 80° through the day with sun heat. Close early and allow a rise of 10° after closing, as Figs to swell off well need abundance of heat and full exposure to the light. Surface-dress the soil with decayed manure.

Young Plants in Pots.—Trees potted last month should be shifted into 10-inch pots before they become rootbound, using plenty of crocks and a compost of chopped turf, a sixth of old decayed manure, and a tenth of

old mortar rubbish. Keep the plants warm; indeed, if intended for early work, they must be grown in an early house and near the glass, where they will make a free early growth, and become thoroughly ripe before autumn. Pinch out the points of the shoots to increase the number of breaks.

Succession Trees Planted Out.—Look well after the trees in stopping the side shoots at the fifth or sixth leaf, and the terminals where space is limited. Thin the side and other shoots to prevent overcrowding, it being essential that the growths have full exposure to light, and tie and regulate the shoots so as to secure a proper supply of bearing wood throughout the trees. Mulch the borders with short manure, and give tepid water copiously, keeping the mulching moist. Syringe twice a day in fine weather, and between 2 and 3 P.M. close the house on fine afternoons.

PEACHES AND NECTARINES.—Earliest Forced House.—Maintain a steady night temperature of 60° to 65°, with a rise of 10° to 15° by day from sun heat, until the stoning is completed, which is now nearly effected. When this is effected, and ripe fruit is wanted as soon as possible, the temperature may be kept at 70° to 75° by day from fire heat, and 10° more from sun heat, closing at 80°, with plenty of moisture in the house. This will swell off the fruit to a good size. It is not advisable, however, to increase the night temperature, as it tends to an ill condition of the wood, the fruit being finer and the young wood of better quality when the ripening is accelerated in the daytime only, taking advantage of fine days to close early. Syringe twice a day until the fruit gives indications of ripening, when, the syringing ceasing, a good moisture should be secured for the benefit of the foliage by keeping the surface of the borders damped morning and afternoon. Remove all surplus fruits directly the stoning is over, and any fruit not well placed for colouring should be turned to the light and supported by thin laths placed across the wires of the trellis. Tying down the shoots will need attention, judiciously stopping gross shoots or terminals when they have made moderate growth; remove superfluous growths, and keep laterals closely pinched to one joint. Water inside borders freely with tepid liquid manure, and mulch with short manure to attract and keep the roots at the surface. Ventilate cautiously in cold weather, as the tender growths are soon injured by cold currents.

Succession Houses.—Tie in the growths as they advance; disbud and otherwise thin the shoots, so that no more growths will be retained than are necessary for furnishing the trees and for next year's fruiting, having them sufficiently thin that the foliage will be fully exposed to light and air. Thinning the fruit must also have attention. When it is swelling freely the number may, when the trees are in good health, be safely reduced to that required for the crop, as to allow twice as many to swell and stone as will be considered essential for the crop is to lessen the size considerably of those that are allowed to ripen. Syringe freely twice a day in fine weather, and always sufficiently early to allow of the foliage becoming dry before night, using clear rain water, as some spring waters leave a sediment upon the fruit and spoil its appearance. Fumigate upon the first appearance of aphides, choosing a calm evening, and being careful to have the foliage dry. Keep a sharp look-out for red spider, especially on the trees over the hot-water pipes; and if forcible syringings do not overcome the pests an insecticide must be applied promptly, as under no circumstances must it be allowed to become established.

Late Houses.—The trees have set the fruit well, and thinning will be needed as soon as the fruit is fairly on the swell, doing it gradually, removing the smallest and worst-placed. Disbudding likewise must be proceeded with gradually and frequently. Admit air fully day and night in mild weather so as to keep the fruit back, it being in a forward state and likely to come in before the succession houses are over. Syringe in the afternoon early enough to have the foliage dry before night, and in the case of unheated houses close moderately early in the afternoon when there is a prospect of frost.

PLANT HOUSES.

Begonias.—These are amongst the most useful and beautiful of plants for the winter, and shoots for cuttings are now plentiful of such kinds as Ingrami, Knowsleyana, and other good varieties that flower freely. Cuttings should be inserted in pots or pans in sandy soil, and if placed upon a shelf in a warm house they will root quickly. It is a mistake to place them in close moist frames or under bellglasses, for they are very liable to damp, which is not the case when stood upon shelves and shaded from the sun. The last-named comes true from seed, and a stock of plants can be readily raised, which if confined at the roots for some time before they are required in bloom, will flower as profusely as those from cuttings.

Begonias manicata and *heracleifolia* are two of the most serviceable we possess for the conservatory where a night temperature of 45° to 50° is maintained. They will stand in this condition for two months or more, provided they are placed in just before their flowers expand. When arranged amongst other flowering plants they give to the whole a light and elegant appearance. The last-named is the more showy of the two, its flowers being larger and deep pink. It should be grown in larger numbers than *B. manicata*, but this variety cannot be dispensed with. Young stock is the best for winter, unless large plants are required, and the plants should be annually raised by cuttings. These are taken off and placed singly in 3-inch pots in a compost of loam, leaf mould, a seventh of manure and sand, a little of the latter being placed in the centre of each pot for the base of the cutting to rest upon. These strike as readily as the other varieties on a shelf, or stood in a warm house, if kept shaded from the sun.

Centropogon Lucianus.—Cuttings will now be plentiful and should be rooted and grown for next winter flowering, for there is no better

or more useful plant in cultivation. During that season its bright scarlet flowers, which are produced in succession, are very effective in a stove, intermediate, or conservatory temperature. In the two cooler houses the flowers last the longest and are of a brighter colour than when in strong heat. The growths are produced along the sides of the old flowering shoots should be slipped off with a small heel and inserted in sandy soil in 5 or 6-inch pots. They are longer rooting than some plants, but will root freely either in the propagating frame or in a warm house; if kept shaded by the former method they root the quickest. After a sufficient stock of young plants has been raised do not throw away the old stock, but cut them close down, and when they start growth from the base turn them out of their pots, reduce the old ball by about half, and then repot them in the same size. Use for a compost good loam, a little manure, and sand.

Linum trigynum.—This is generally placed amongst greenhouse plants, but those who subject it to greenhouse treatment will not achieve success. It enjoys heat during the spring and autumn, while during the summer months it will do well under cool frame treatment. It is best raised by cuttings annually for winter flowering, as the old plants are never so satisfactory as those that are grown freely and quickly. The young tender growths are the best for cuttings, and will form roots in about ten days in brisk moist heat. They root so quickly and certainly that it is advisable to insert them singly in small pots, as when rooted they can be grown without receiving any check, which they receive when divided and potted. As soon as they are well rooted the points of the young plants must be pinched out to cause them to branch. Stopping the shoots must be particularly attended to as soon as a little growth has been made, so that bushy little specimens can be produced by the time they can be placed in cold frames.

Plumbago rosea.—Old plants that flowered during the winter and have been reserved for stock will now have abundance of strong cuttings. It is important to have good cuttings to start with; if obtained early they are but little better than flower stems, and sooner than employ these for cuttings it is wise to postpone their insertion for a week or two. They root readily, and as soon as sufficient cuttings have been taken the old stock may be thrown out. Insert the cuttings singly in small pots the same as the *Linum*, and in a short time, in brisk heat, they will form roots, especially if under a bellglass or in the propagating frame. The variety known as *ecceinea* is very bright in colour, but grows taller, consequently both should be grown.

Sericocephalis Ghiesbreghtiana.—Another useful old plant for the winter, and, when well grown, it is invaluable for cutting and conservatory decoration. The tops of the shoots should be used for cuttings, and inserted singly in small pots, as they will root freely under the same conditions as those mentioned above.

THE BEE-KEEPER.

SPRING FEEDING.

At the present time and for some weeks to come bee-keepers will be occupied chiefly in feeding-up their stocks, so as to have them as forward as possible when honey is abundant. Comparatively few, however, understand the true principles of spring feeding, or "stimulating" as it is more properly called, and we think a few notes may not be unacceptable to our readers, especially the inexperienced ones, which will enable them to work less by rule of thumb and more in the light of knowledge as to why certain operations are undertaken at this season. If bees are safe as regards risk of perishing from actual want of food, they should be undisturbed until the first or second week in March. We speak of the northern counties, in the south a week or so earlier. This advice may appear somewhat late, but instructions have already been given in your columns for feeding; and our object now is to explain more fully the principles involved.

The first fine day will see the bees carrying in large quantities of pollen. This income after the long repose of the winter months causes considerable excitement as well as activity among them, and excitement from any cause is invariably followed by a rapid rise in the temperature of the hive. The natural result of this is a thorough warming of the cluster. The bees spread themselves out, giving the queen more freedom to move about on the combs; and she will, if this increased warmth is maintained for a day or two, commence ovipositing much more freely than before. On the other hand, if a day's busy pollen-gathering is succeeded by cold weather, the excitement subsides, the bees cool down as it were, and cluster as closely as before. If the bee-keeper selects the right day when the bees are thoroughly roused, and supplements the pollen obtainable by a continuous supply of thin syrup, he has it in his power to keep up the abnormal warmth of the day's busy work, and the bees are stimulated or forced just as plants are by the action of a hotbed. To make the matter quite clear, it must be understood that the bees' share of the work is simply to create and maintain a temperature sufficiently high to hatch the brood, while a good queen is always ready to produce as many eggs as the bees can attend to.

When a start is decided on warm the food slightly. Do not give the first bottle till the evening, because a rapid supply of syrup given to half a dozen stocks on a warm day would be almost certain to induce a tendency to rob all round, and this should be very carefully guarded against. The following morning remove the bottle, whether the food is all taken or not, and substitute the slow feeder. Another thing must not be overlooked. Any weak stocks must be left unfed till all the others are well accustomed to the feeding-bottle. If a weak stock is fed at the same time as strong ones, probably it will be attacked and the food taken from it as rapidly as given, in which case it is almost impossible to preserve it. The feeder should also be carefully guarded against bees reaching it from the outside.

About half a pint of syrup should be given as rapidly as the bees will take it on commencing to stimulate, after which we think the best guide as to quantity is one pint (or $1\frac{1}{2}$ lb.), given at such a rate as will occupy seven days in taking the whole. Three and a half ounces per diem may not seem a great quantity to maintain a large colony of bees, but it must be remembered that by the time the stocks become strong there will be a natural income in addition from Gooseberries, &c., so one pint is abundant food for a week. If there is much sealed food in the hive a comb may have the cappings removed, and if placed in the centre of the bees they will at once take the honey to another part of the hive, leaving the cells ready for eggs.

When stimulating is successfully started the increased warmth of the coverings about the feeder becomes very perceptible. The bees constantly crowd round the source of supply, and are always on the look out for the food. The entrance to the hive must be contracted to about 1 inch, and every means be taken to add to the warmth of the coverings. There is no need for ventilation after February is passed, and crown boards may be used with advantage over the quilts.

There is always a difficulty in improvising an efficient feeder. High-priced ones are only used by the few, but a very effective article may be made at a nominal cost and with little trouble as follows:—Take a common pickle-bottle holding about a pint, cut a square of very thin zinc (the thinner the better), mark on this a circle the size of the bottle mouth, and with scissors cut the zinc so that the parts projecting beyond the circle may be bent down the neck of the bottle and tied on with string. Three small holes punched in the zinc will give about the right quantity of food. If a thin board the same size as the top of the hive has a $1\frac{1}{2}$ inch hole cut in its centre, is laid over the quilts with a half brick or other weight on each corner to keep it down, a capital feeding stage is formed, and it only needs a small piece of glass for slipping over the hole when removing the bottle to make it complete.—W. B. C., *Higher Bebington*.

LIGURIAN AND SYRIAN BEES.

THE debate originated by "W. B. C." and carried on by others on the inferiority of the Ligurian bee as a honey-gatherer appears to be of national interest to English bee-keepers and of serious moment to all. If the Ligurians are unsuited to the English climate—for, as I understand it, "W. B. C." does not dispute their value in countries where the honey flow is lengthy—by all means let us face the truth, or in a few years' time we shall repent the obstinacy in acknowledging an error which many of us do not like to own. On the other hand, if those who find Ligurians profitable will give accurate details of the manner in which they have proved themselves ahead of blacks, we shall have done something towards arriving at the truth.

The recent contributions on the point are against the Ligurians, but "Hallamshire" brings a new element into the argument by his advocacy of the importation of the Syrian bee. When looked at with an unbiassed eye I fear his warm commendation of them will not hold good. "W. B. C." has not tried them, others have. The "American Bee Journal" has a very clear and—being from the pen of Mr. Doolittle—I may add faithful article on the subject. It is on page 132 of the present volume, but being three columns in length I can only quote small portions of it. "I had one colony of Syrian bees during 1883, and three till after the honey harvest of 1883 with their increase, and from all I did not get 50 lbs. of honey, and I had to feed each to get them prepared for winter. The same number of Italian colonies gave me 500 lbs. during the same time." So much for yield. Mr. Doolittle then goes on to speak of the propensity these bees have for keeping fertile workers, "that the apiarist would suppose they had a laying queen, and is deceived until the chance of getting the colony into condition is passed."

Then as to stinging. "The 10th of December being warm, I took out two frames to feed them. As Mr. Carrol wrote me that I would have less difficulty in handling the Cyprians if I used no smoke, I placed the smoker, well filled and lighted, on top of next hive. I had not got the quilt half off before two dozen bees darted at me. . . . I allowed two or three to sting my hands while I watched them. Some of them would bite half a dozen times before they would sting." Then smoke was tried till it rolled out of the entrance; "it helped some, but still I got twenty-five stings"—which is not a pleasant picture, I think "Hallamshire" will admit. If Syrians in the hands of such an able bee-master

as Mr. Doolittle are unmanageable and profitless, surely it is fair to suppose the generality of English bee-keepers will be better without them. But to refer to "Hallamshire's" own letter. Would he give particulars of the case that he can cite, in which £20 profit was made in one year from one stock? Was it in comb or extracted honey? How much from the parent stock, and how much from the swarms?

I have some recollection of a statement of the sort in print; but as I believe the bulk of the profit was derived from the sale of swarms or queens, and was, if I remember rightly, in 1881, when all stocks—black or yellow—gathered enough to winter upon, I presume "Hallamshire" refers to some other colony, for profit derived from the sale of swarms does not touch the question, except in an adverse way. Moreover, such isolated instances give a fictitious colouring to the craft which is hardly advisable.

To hark back to the original point. By all means let bee-keepers thankfully and industriously use the columns of the *Journal of Horticulture* to sift this question thoroughly, giving the Ligurian due justice where facts bear out theory; but carefully weighing his gilded and specious appearance and amiable manners against the more sober and, I venture to think, more substantial qualities of the hitherto abused black.—K. B. K.

At page 253 "Hallamshire" speaks of the Syrian bees having realised all his wishes, and cites a case where £20 profit has been made in one season in this country from one stock, another where the increase was £7, and each gathered sufficient to winter on, while twenty black stocks failed to swarm, and had to be fed to winter. Was the above profit made from honey alone, or by rearing queens and selling them at high prices? and were the blacks and Syrians treated alike? If by uniting the two extremes a Syrian queen mated with a black drone is so successful as honey-gatherers, may not the same be said if a Ligurian queen was mated with a black drone? More particulars are required on this subject, as few bee-keepers would object to investing 22s. in a queen if there were a prospect of realising £20 profit in one season. "Hallamshire" has now a good opportunity of bringing the merits of the Syrians before the public by competing in the "Blythe competition," the object of which is "to show the relative merits of different systems of bee-keeping, and to prove to the cottager that bee-keeping, if conducted on economical principles, is highly remunerative to bee-keepers." Any bees are eligible.—A. TYKE.

TRADE CATALOGUES RECEIVED.

E. H. Krelage & Son, Haarlem, Holland.—*List of Coloured Plates of Plants, Flowers, and Fruits.*

Rawlings Bros., Old Church, Romford.—*Catalogue of Dahlias.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Label in Glass Tube (G. Ashforth).—No doubt the label was good when you sent it off, but it was useless on arrival here, as the glass tube was smashed to atoms. The method of enclosing paper labels in glass tubes is not new, Mr. Cannell of Swanley among others having them in use.

Pear Blossom on Young Wood (P. G.).—Although not frequently seen because of overcrowding of the growths in summer and close pruning in winter, it is yet not by any means an uncommon occurrence for blossom buds to form on wood of the previous season's growth. We have gathered some of the finest of Pears that were produced in the manner indicated.

Magnolia conspicua (Aurora).—This is no doubt the name of the Magnolia to which you refer. It has flowered freely in March near London this year, and the trees were and are yet strikingly and conspicuously beautiful, and all the more effective when seen against a background of evergreens, and in the twilight. Light yet rather firm soil is the best adapted for this Magnolia, and a sunny position, as under those conditions it grows sturdily, and the wood ripens well. In rich soil or damp positions the growth is often too succulent and immature for yielding a profusion of handsome and delicately fragrant blooms. We never feel it a trouble to answer inquiries that may benefit our readers.

Lettuce (*E. T. H.*).—Probably you are right, but we cannot speak positively on the matter.

Name of Beetle (*W. H.*).—The insect forwarded is one of the predacious water beetles (*Dytiscus marginalis*). Although aquatic in habit, they will sometimes quit ponds and ditches to hunt land insects, and should they occur in a garden they would be rather beneficial than otherwise.

Non-Execution of Order (*J. R.*).—There is evidently some mistake somewhere; the advertisement does not appear very explicit. We will write to the advertiser on the subject. Possibly, however, by this time you may have heard from him yourself.

Sowing Seeds (*Orchid*).—It is absurd to suppose that there is any advantage in sowing seeds on any particular day in the calendar; on the contrary, great disadvantage may result if the weather and ground be unfit for the reception of the seed on the stipulated days. Your neighbour must be very credulous to believe such nonsense as is published in his almanack. The Orchid you have sent is *Tricopilia suavis*.

Garbled Citations (*Exit Verity*).—The note you have sent, if printed, would be enigmatical to the majority of our readers. When a person resorts to altering another person's language, and founds thereon an argument, he ceases to be a fair controversialist, and damages his own reputation in the most effectual manner.

Bulbs Decayed (*G. Long*).—Your garden appears to be infested with a species of *Julus*. Does the land need draining? Soot and lime liberally dug in would be useful, and in addition to that we should place wood ashes round the bulbs when planting. Are you sure the bulbs were sound when planted? and were they planted in good time? Watering the beds with a mixture of petroleum and water (2 ozs. of the former to a gallon of the latter) would probably be advantageous. Try it now and note its effects.

Planting Standard Roses (*S. B.*).—It is late now for planting Roses; still they will grow if the roots are kept quite moist when out of the ground, not otherwise, and the stems and branches also kept as moist as possible. At the time of taking up the Roses we should shorten every shoot closely, leaving only about two dormant buds on each. Should the weather prove dry after planting haybands wrapped round the stems and kept moist would be very beneficial, and if made and applied neatly would not have an unsightly appearance. The Shallot to which you refer is probably the Large Brown Russian.

Preparing and Spawning Mushroom Bed (*S. W., Scarborough*).—It is just possible you kept the manure too long under preparation in the shed, but still the bed will probably gather heat. Cover it thickly with straw, and if this fails remove the top 6 inches of the bed and place in a layer of warm manure, replacing the former. A newly made bed often remains apparently cold for a few days, then the heat rises more or less rapidly. It should rise as high as it will, and then when declining insert the spawn; if inserted when the heat is rising the mass may become too hot. A thermometer plunged an inch or two in the bed is a safe guide, as when it registers 80° the bed will be right for spawning. Failing an instrument, let a stick be kept in the bed, and when it is new-milk warm the manure will be suitable for the reception of spawn.

Aerial Roots on Vines (*W. C. B.*).—The presence of roots in large numbers issuing from the stems of Vines suggest that the roots in the borders are not affording the requisite supply of nourishment for supporting the growths and foliage, or that the atmosphere of the house is kept unduly moist. These adventitious roots cannot be regarded as "beneficial," neither is their removal beneficial nor apparently injurious. When they occur no harm is done by leaving them to shrivel, and, except that their appearance is objectionable, they are not usually removed in a fresh growing state. The address of the Secretary of the Leeds Gardeners' Benefit Society is Mr. W. Sunley, Bacchus Hill, Moor Allerton, Leeds.

Good Semi-double Zonal Pelargoniums (*C. M.*).—Amongst so many that are good it is somewhat difficult to select a few of the best. The following are chosen from one of the best private collections (Mr. McIntosh's at Duneevan) as likely to meet your requirements:—Guillon Mangilli, purple-pink with scarlet; Monsieur Buchler, dark purple; Madame Thibaut, pink; Lucie Lemoine, flesh; Atala and Commander-in-Chief, orange-scarlet; David Thomson, dark crimson; Ferdinand de Lesseps, scarlet, light eye; Metis, crimson, white eye; Orestis, shaded magenta; Ellen and Imogen, salmon; Sybil Holden and Lady Sheffield, shaded pink and purple; Mrs. Leavers, bright rose; Lucy Bosworth, light rose; Eureka and Prima Donna, white. West Brighton Gem, a variety of Wonderful with cream-coloured flower stems, you might also find useful.

Roses not Expanding (*C. W. D.*).—Your plants are evidently unhealthy, but the cause of their present unsatisfactory state we have no means of determining in the absence of any particulars as to the treatment the plants have received. Perhaps the soil is sour by overwatering, or on the other hand it may have become too dry at some time, causing the roots to shrivel; at any rate it is almost certain the root-action is defective, as if this were not so, and sufficient water was given, there would have been no occasion for shading the house during the late bright weather. Have you employed too much fire heat and kept the house too close? You say you have good "fire-heated flow and return hot-water pipes," but do not say a word as to the temperature you have maintained, nor your method of ventilating. Employ as little fire heat as possible to keep the temperature from falling below 45° at night, and open the ventilators half an hour after the sun shines on the house in the morning. Perhaps your plants need fresh soil; if so repot them, using a compost of good loam and a sixth part of old manure with a little gritty matter for keeping the soil porous, and encourage them to make good growth in the open air in summer.

French Beans Failing (*Bean*).—You have stated quite sufficient to enable us to account for the flowers dropping off the plants. You will neither be able to grow Beans nor anything else satisfactorily where the flues are so defective as to admit such a volume of smoke and noxious gas into the house. It appears to us that an otherwise good structure is rendered useless by a defective flue. Such a house is well worthy of being heated by

hot water; but if this method is denied you must have a flue without a fissure anywhere for the exit of smoke, or you will not succeed in growing anything when fire heat is employed. Well-constructed flues of good sanitary pipes, but not in immediate contact with the furnace, where fire bricks should be used, have been found satisfactory in many places, and cheaper than brick flues. A good flue is useful, a bad one worse than nothing, for it is a destructive nuisance.

Azaleas and Heaths Unhealthy (*An Amateur*).—Azaleas well managed flower profusely every year. They require to be firmly potted in good peat soil with a little leaf mould and sand intermixed and very carefully watered, neglect or mistakes in this respect quite nullifying everything else that may be done for them. If once the soil gets quite dry the hair-like roots shrivel, the leaves fall from the plants, and flowers consequently cannot be produced. A greenhouse temperature suffices, a little extra heat in the spring when growth commences, and copious syringing being advantageous. Plants that are very unhealthy are difficult to restore. Close pruning will not benefit them, but removing a good portion of the old soil and repotting in fresh of the nature indicated, using pots as small as possible, and pressing the soil very firmly, always keeping it moist but never saturated, placing the plants in a warm greenhouse or vinery, syringing them at the least twice a day, may possibly induce them to commence fresh growth. That is the only way in which they can be improved. Heaths in a "mangy" state are perhaps still more difficult to renovate. They must not be pruned below the foliage or they will die, and the general treatment as advised for Azaleas may be adopted, except that they will be better in a cool frame than a warm house. Only experienced amateurs and good cultivators can grow these plants satisfactorily. More extended notes on culture will shortly be published in this Journal.

Vine Eyes not Growing (*F. C.*).—We are glad to hear from you again, and particularly regret to learn of your protracted indisposition. It is just possible that however attentive your "help" may have been, that if you could have attended to the Vine eyes yourself you would have had similar success as on a previous occasion, provided—and this is important—that the eyes were cut from hard, well-ripened, and nearly pithless wood. We quite understand the condition of the incipient plants now, and do not despair that some of them at least will grow freely if the wood was of the nature indicated. It is very common for Vine eyes to elongate for an inch or two and then cease growing. The first spurt is supported by the food that was stored in the wood round each eye, and when this is exhausted before roots are formed the growth must perforce cease until they are produced. In the meantime it is better not to disturb the eyes at all, or root-formation may be arrested. Possibly the atmosphere of the house may be rather dry; if so, place a handlight or bellglass over the Vine eyes. The frame in which you raised Vines before would contain more moisture than the house.

Pines not Fruiting (*Idem*).—The plants are not too old to fruit. It is not too late for them to throw up and ripen their fruit this year, and you may grow Pines in a house with the temperature named if you manage them properly. Unless your plants are of extraordinary size the pots are too large, and in all probability the plants have had too much water in winter. In such pots, plunged, and in the low temperature of 56° to 60°, water would not be needed at all during the months of November, December, and January, then about one watering in February and two in March would suffice. Let the soil get dry now until the leaves lose their crispness, and also let the temperature remain as it is. This will give the plants a check, and in the course of a month you will have no difficulty in maintaining a night temperature of 70°, and this may induce the plants to show fruit. The previous check they received would not prevent their fruiting now, unless it prevented their attaining a fruiting size. We suspect they have too much root space, and have been kept too moist during the winter.

Names of Fruits (*C. B.*).—We have carefully examined the Apples, but quite fail to identify the varieties. They are possibly local, and have not had other than local names. Please send the Peas as soon as possible; half a pint will be ample.

Names of Plants (*H. M.*).—The plant of which you send flowers is *Sparmannia africana*, which succeeds well in greenhouses, attaining a good size. There is no difficulty in obtaining it from nurserymen who grow collections of greenhouse plants for sale. (*Honeysuckle*).—*Lonicera sempervirens*. (*L. W.*).—*Magnolia conspicua*. (*Begonia*).—It is almost impossible to expect anyone to name plants from specimens crushed in an envelope and macerated by the stamping of the post office. Judging from the fragments, No 1 is perhaps *Begonia Ingrami*; 2, *Alonsoa Warscewiczii*; 3, *Violet Devonensis*. (*F. A. M., Sevenoaks*).—We do not undertake to name varieties of Coleuses; no one can do so accurately from solitary leaves, especially when they are imperfect examples. (*Climber*).—The spray is quite insufficient for identification, and, besides, it was quite shrivelled on arrival. (*W. E. B.*).—1, *Eranthis hyemalis*; 4, *Spiraea Thunbergii*. The blue flower is *Muscari botryoides*, and the white one *Iberis sempervirens*; from those the numbers were displaced. (*H. H. G.*).—1, *Begonia argyrostigma*; 2, *Weigela hortensis nivea*; 3, *Narcissus incomparabilis*; 4, *Chrysanthemum segetum*; 5, *Adiantum macrophyllum*; 6, *Asparagus plumosus*. Not knowing the treatment the Fern has received we have no means of determining the cause of its sickly appearance. (*M. C. B.*).—The large white flower is *Magnolia conspicua*, the other is *Tecoma capensis*.

Bees (*T. Marriott*).—Your hive is doubtless a strong one, and evidently does not need to be fed. We would not advise you to put on supers before the end of this month or the beginning of May, and only then if the season is favourable. The stock hive ought first to be filled before you put on the supers. The size of the supers is a question of taste.

A Weak Hive (*W. C.*).—It is difficult to advise as to the best course to be pursued without some knowledge of the stock of bees in question. If they are reduced to "only about a handful" through some inherent defect of the queen you had better destroy them and close up the hive, or the probability is the bees of your strong stock will plunder it before the present month is out. The combs and food being "clean and healthy" will give a

capital start to a swarm from your strong hive, especially to a second swarm. On the other hand, if the stock is one which swarmed late last year the young queen may have had no chance of developing her laying powers. In this case you could give her the needful help by transposing the stocks on a fine day when honey is coming in freely, not otherwise, or the strange bees might encase the queen and probably destroy her. Bear in mind that you will throw your prosperous hive considerably back by robbing it of the greater portion of its adult population, and nothing but anxiety to save a young and fertile queen will justify the experiment. You must contract the entrance and wrap all up as warm as possible for fear of chilling the brood. On the face of your communication, and from the fact that you are "only a learner," we rather deprecate the idea of your trying to save the few bees and queen left in the weak stock. It will be the wiser and safer course to let well alone, and not run the risk of further "unsatisfactory experiments." Operations which could be successfully accomplished by an experienced apiarian often fail in the hands of a novice.

COVENT GARDEN MARKET.—APRIL 9TH.

ALL branches of the trade dull, with good supplies, Strawberries especially meeting with little demand. Prices without alteration.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	to 5 0	Nectarines dozen	0 0	to 0 0
" per barrel	0 0	0 0	Oranges 100	6 0	10 0
Apricots box	0 0	0 0	Peaches dozen	0 0	0 0
Chestnuts bushel	10 0	0 0	Pears, kitchen dozen	1 0	1 6
Figs dozen	0 0	0 0	" dessert dozen	1 0	5 0
Filberts lb.	0 0	0 0	Pine Apples English lb.	2 0	3 0
Cobs per lb.	1 3	1 6	Plums and Damsons	0 0	0 0
Grapes lb.	5 0	10 0	Strawberries lb.	4 0	8 0
Lemon case	15 0	21 0	St. Michael Pines each	2 0	8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	1 0	to 1 6
Beans, Kidney 100	1 0	1 6	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 0
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	1 6	2 6	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	" Kidney cwt.	4 0	5 0
Carrots bunch	0 3	0 4	" New lb.	0 4	0 6
Cauliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 6
Coleworts doz. bunches	2 0	4 0	Scorzoneria bundle	1 6	0 6
Cucumbers each	0 6	0 9	Seakale basket	1 0	1 6
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 0
Herbs bunch	0 2	0 0	Spinach bushel	2 6	3 6
Leeks bunch	0 3	0 4	Tomatoes lb.	2 0	2 6
Lettuce dozen	1 0	1 6	Turnips bunch	0 3	0 0

not be discouraged, but proceed, assisted by our long experience, in adapting rotations to soil, climate, and other circumstances. In doing this we cannot consent to give up sowing Wheat after Clover, because it does not necessarily follow that if the mildew in Wheat prevails to a greater extent than after any other preparation it is in consequence of the Clover plants and roots being ploughed in; but we think it is from various other causes, such as late sowing, late ploughing, and also the application of farmyard manure, which it is the general custom to lay on the Clover lea. Early ploughing, especially in the second growth of Clover, gives the land time to settle, and it really requires no manure in that case. If, however, any is given, let it be bone superphosphate or bone meal drilled with the seed, as all nitrogenous manures tend to produce an excessive bulk of straw. Late ploughing and late sowing often cause deficient plants in various ways, the attack by slugs or wireworms, and the later gathering and more tillering required is therefore sure to render the Wheat straw more liable to suffer from the mildew, as they are comparatively immature and irregular at the time of ripening, and in consequence of the comparative absence of silica in the straw of all those crops which have made an unusual effort to reach the period of harvest. We have noticed on various farms, and especially on the chalk hill farms, where large flocks of sheep are usually maintained, that instead of ploughing the Clover leas early and allowing them to become settled and stale on the surface and sowing the seed early, we find great objections to early sowing are taken, in consequence of the flock requiring all the Clover feeding possible and thus delaying the seed time, which, fifty years ago, was at least six or eight weeks earlier than under the present system. Late sowing also frequently sacrifices a large portion of Wheat, through the plants being lifted by late frosts in the spring, especially when the seed is drilled and buried shallow, whereas, if sown after the presser, the plant has a deep root-holding of the soil which bids defiance to spring frosts.

Taking all the facts into consideration we assert that it is not the Clover lea which is at fault, but the management and preparation generally speaking. Yet it is well to remember that the germs of the mildew fungus is alive, or may be in all farmyard manure, and that in case of using farmyard manure it should be applied on the young Clover plants in winter or early spring, thus manuring the Wheat crop indirectly, and at the same time adding greatly to the crop of Clover, and especially of the roots, which are, according to Dr. Voelcker's analysis, so valuable as a manure for the succeeding Wheat crop. It is, however, difficult to farm without Clover lain preceding the Wheat upon dry and friable land, but on heavy land, being part of a farm, the Wheat crop, when the land is free from couch, may follow a lain of half Clover and half Beans; but on a well-tilled land in a high state the Wheat would be succeeded by Lent corn, which in case of the Wheat having suffered from mildew, the Lent corn also may suffer in the same way.

It is the revival of the mildew spores which we should dread the most when the manure made from mildewed straw was applied to a cereal crop, therefore it is best to grow roots or green crops, Beans or Peas, after the Wheat instead of before, and apply the yard dung to them, because these crops are not subject to mildew like the cereals, as Beans and Peas are only blighted by the black or green aphides. Beans and Wheat from time immemorial have been the rotation in various districts of strong rich land, particularly upon a chalk subsoil, and the Wheat crop seldom becomes mildewed. Again, in our own case, we had certain fields which grew fine crops of Wheat and Potatoes alternately for many years. These crops of Wheat never suffered from mildew, although we had serious injury done to a late-sown crop of Wheat when substituted for Lent corn. The sowing of certain sorts of Wheat in districts subject to mildew is also of importance, because the white Wheats are more delicate in growth and suffer more than the red Wheats, which are of a more robust habit of growth.

With regard to the influence of certain manures, it has come out in evidence, received from Mr. Little's correspondents, that nitrate of soda and also farmyard manure having been applied for Wheat, that those crops suffered more than when some other dressings were applied, such as nitrogenous and ammoniacal manures, woollen rags, soot, rape cake, decorticated cotton cake, heavy folding of sheep, excessive manuring, and liquid manures. Dr. Voelcker's letter to Mr. Little upon the subject is important as well as interesting, which for want of space we can only give in a short or condensed form. Speaking of the analysis of a soil he gives a reply to his correspondent who seeks information, who had for seven years successively suffered from mildew in his



MILDEW IN WHEAT CROPS.

(Continued from page 276.)

In continuation of this subject we must endeavour to show how lands can be cropped in succession to avoid the ill consequences which the scientific men of the day assure us must inevitably accrue to a cereal crop if the manure made from mildewed straw is applied to land under cereal crops. As nearly all our farm crops have enemies and diseases peculiar to them, the cereals are all liable to mildew, and the mildew not being confined to Wheat alone, but also to Rye Grass, &c., renders the choice or selection of crops necessary in a rotation to avoid mildew; and it restricts our selection very much, especially as the cereals are, after all, the real paying crops of the farm, and although frequently sold at a low price, as for some years past, yet with ordinary care in choosing our customers there is a ready sale and the money sure.

Let us see how the four-course rotation will assist us in evading the effects of mildew. It is stated by various correspondents who replied to the questions issued to the practical farmers by Mr. Little, that Wheat after Clover seeds and lea has suffered far beyond any other preparation, for twenty-one correspondents give evidence as to the injury after Clover, but only six returns show the disease as occurring after Grass seeds and ordinary Grass leas. This is extremely disappointing to many, for their preconceived opinions, based upon science and practice, have for a long period given Wheat out of lea or Clover the preference to any other preparation when adopted in the rotation. This being proved renders our task more difficult in any attempt to alter the rotation; but we must

Wheat crops. He says, "I give you an abstract of my report:— 'Your soil is unusually rich in nitrogenous and organic matters, and it also contains more potash than most clay soils, which accounts fully for the fact that your Wheat and Beans got blighted, and made lots of straw and haulm in wet and cold seasons like those we have had for the last six or seven years. On the other hand, your soil is very deficient in phosphoric acid, and not over-rich in lime.' " This is only a small quotation from the report by Dr. Voelcker. It is, however, sufficient for our purpose of giving opinions obtained from our own practice. In all good land, but especially in those strong soils rich in potash and lime, sulphuric acid, &c., being deficient, nitrogenous manures should be avoided, but taking care that carbonate of lime obtained by chalk, or lime in its pure state, should be considered as manures more essential than many others for producing healthy plant growth. The best strong soils, when clean and free from couch, really require little or no ordinary manures, except mineral manures, such as bone superphosphate, or pure bone meal drilled with the seed, for then the sulphuric acid required and silica also will be available as food for the Wheat plant, and give a more healthy growth, enabling it to withstand with more or less success the influence of adverse seasons, and reduce the probability of injury from the attack of mildew and its germs or spores, which may prevail, no matter from what cause or source. In a letter from Sir J. B. Lawes to Mr. Little he enforces a previous opinion, by giving some particulars of plots of land which had grown Wheat only for a long series of years, and which had been "well and judiciously manured," and states distinctly that the remarkable variations in the proportion of offal corn, which his figures show "cannot be accidental," and he adds; "we know that in bad seasons the best crops are attacked with mildew, if that be the prevailing disease."

The conclusion we arrive at from the perusal and study of both Sir J. B. Lawes' and Dr. Voelcker's letters to Mr. Little is that the greatest produce of straw in the Wheat crop subjects it to the attacks of mildew; but the use of mineral manures to a great extent diminishes the injury by producing stiffer straw and less foliage, for gross foliage is always attractive to the germs or spores of the mildew fungus. We also from these facts arrive at the conclusion that we are also well repaid for our endeavours to avoid mildew even in fine seasons, for the effect of mineral manures generally gives a large crop of grain, and it being of greater weight per bushel gives it a full value in the market. We therefore give it as our opinion that the land cannot be successfully cultivated for the production of cereals on any soil where lime, or the carbonate of lime—chalk, is more or less absent.

WORK ON THE HOME FARM.

Horse Labour.—After nearly three weeks good dry March weather the rain, which commenced to-day while we write, March 31st, will, if not too continuous or persistent, assist the horses by accelerating the working of the land into a fine seed bed for Barley; for upon some of the strong soils the land has turned with a rather tough and cold furrow, but has dried so quickly as to become hard and difficult to reduce into a sufficiently fine tilth as a preparation for various seedings, such as Barley, Oats, and Mangold. In fact there will be now more than ever quantities of land laid into permanent pasture under the influence of a wide-spread and popular opinion that the cereals will not pay for cultivating or producing under present prices of grain. In consequence we must ask the home farmer to be sure and reduce the land to a fine tilth under any circumstances, for whether the grass seeds are sown on the Barley, Oat, or Wheat crop, or in case of the grass being sown on a fallow without taking a corn crop, still in every case the land should be firm and very fine, otherwise much seed will be thrown away by not vegetating at the proper time. The preparation will still be going on for Oats and Barley seeding, and should be reduced to a fine state, and thus not trusting the weather, which is a speculative transaction entirely on account of the uncertainty of the climate. A different idea as regards the seeding for the arable land prevails to a considerable extent, and the success so far of the ensilage question will begin to have an effect upon the minds of some farmers as to the policy of sowing with the Clovers the early and coarse sorts of the meadow grasses, and chosen with a double object in view—to be converted into hay as formerly, or ensilage under the new system, or fed by sheep and cattle as occasion may require. We have recently received so much information on the subject of making silos in the most economical manner, that it is being considered now whether any expense of consequence need be incurred where dry firm soils exist, especially those of chalk, sand, and limestone. In America a silo has frequently been improvised on almost any soil, and we are noticing almost daily that some farmers in this country, especially those who cannot afford an expensive silo, have turned out very useful ensilage from quite an ordinary pit under varying circumstances of soil and situation. On the chalk hill farms ensilage will be good food for in-lamb ewes as noticed in Mr. Wood's lecture the other day, and it proves better by far than trusting to roots and hay entirely to maintain them in good health and condition until lambing time. We are informed that the cheapest

silos have been formed by making a pit of the required size as to depth length, and width upon a chalk soil, which is sure to be dry, and will answer a temporary purpose without even cement, as applied to the sides, bottom, or ends, if covered with planks and loaded with dry earth has succeeded in preserving the ensilage in good form and condition. This may be done in any field where the materials are grown, whether it refers to Rye or Clovers, Sainfoin, or mixed grasses, yet in those cases where bullocks for fattening or dairy cows being fed at the stalls a silo of a permanent kind will answer the best purpose. Still, as we have so much yet to learn upon the subject, we shall defer any further remarks to a future time, as the question is really so extensive that events may easily occur to make it worth while for some farmers to wait until the present agitation has subsided on to something like a level basis, both as regards test of silo and other important matters in connection with the subject.

Hand Labour.—This is still very various, for the planting Potatoes, and manure carting, filling, and spreading, will require some hands where this work is still going on. Sowing the grass seeds by hand will be required where men are found equal to it, but the best sowers by hand are nearly all dead, and this work is now mostly done by Bennett's hand-barrow sowing machine, but even that requires more care in adjusting than is often taken to properly and evenly seed the land, for all light grass seeds should be sown separately from the heavy seeds like Clover, &c., because they will not run with regularity in the mixed state from Bennett's machine. Upon strong soils where the Oats or Barley is seeded to Clover, the water furrows should be carefully struck and made out, the earth from the spade should be widely spread, otherwise the small grass seeds will be too deeply buried.

Live Stock.—Easter being at hand, young lambs will be required, and are at this time selling well, quite irrespective of beef and mutton, and in the near future will be sure to sell well, because those in prime condition do not meet any foreign competition. With respect to the feeding of young lambs to be sold fat, this is a critical period, for any want of good and sufficient food being available, either for the lambs or their dams, it will reduce the condition of the lambs to a state from which they will not easily recover. The roots such as Turnips and Swedes, the latter in particular, will have lost much of their nutriment for stock-feeding unless they have been crowned down as we term it, for our practice formerly consisted in cutting off the greens and stems of them down to the crown of the bulb, and in this way they will remain sound in the land for months and prove good food for stock up to midsummer, for on various occasions we have been feeding the roots on the field where grown until midsummer in prime condition. This, however, was a plan we adopted before the Mangold crop became well known and available as food for sheep, because for many years it was repudiated as good for ewes and lambs. Those who have ensilage for feeding their fattening cattle, dairy cows, and farm horses, will now find it a good thing; but there are many circumstances which will require consideration as between it and Mangold, for even as food for farm horses both are very good indeed, and it enables them to perform more easily the work of the farm at the busiest period of the year, for when horses are kept on dry corn and hay only in the spring months, it is prejudicial to their health and power in work, even with an extra bait of corn, as compared with succulent roots or freshly preserved grass out of the silo. Dairy cows especially will frequently require abundance of succulent food or brewers' grains to enable them to maintain their best milk record.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
1884. March and April.	Baromet- er at 324 and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday 30	29.851	42.2	40.1	N.E.	42.8	51.8	36.2	76.9	30.6	—
Monday 31	29.538	48.0	44.7	S.E.	43.8	54.6	41.0	85.0	40.6	0.011
Tuesday 1	29.607	53.3	49.1	S.E.	44.3	59.7	43.4	93.7	38.4	—
Wednesday ... 2	29.637	58.4	52.4	E.	46.0	68.4	43.7	107.0	37.2	0.030
Thursday 3	29.504	58.1	53.3	N.E.	47.9	67.2	47.7	106.5	41.7	0.066
Friday 4	29.578	50.8	47.4	N.E.	48.5	62.3	42.9	104.7	38.7	0.122
Saturday 5	29.378	52.6	49.4	E.N.E.	49.2	57.6	45.9	74.7	42.3	—
	29.585	51.9	48.1		46.1	60.2	43.0	92.6	38.5	0.229

REMARKS

30th.—Fair, generally dull, but a little sunshine; slight fog at night.
31st.—Dull, slight rain about 9.30 A.M.
1st.—Fine and warm, but with occasional sprinkles of rain.
2nd.—Very fine and warm; bright lightning in N.E. at 10.50 P.M. with rain.
3rd.—Loud thunder at 4.10 A.M. with short sharp shower; fine day.
4th.—Generally fair, with rain after 9 P.M.
5th.—A fair day, with occasional spots of rain; parts of afternoon and evening very fine and clear.
The early days of April have been very warm, with, as is frequently the case after such weather, rather sharp thunderstorms in the evening and night of the 2nd and early morning of 3rd. The former storms were several miles N.E. of this station; that in the early morning of the 3rd appeared to be in the N.W. of London, and to judge from the exceptional brilliancy of the flash and the long reverberations of the thunder the stroke must have been of exceptional violence, but as no structural damage has been reported it probably struck between two low-lying clouds.—G. J. SYMONS.



17	TH	Linnean Society at 8 P.M.
18	F	
19	S	
20	SUN	1ST SUNDAY AFTER EASTER.
21	M	
22	TU	Royal Horticultural Society. (Fruit and Floral Committees at 11 A.M.)
23	W	Royal Botanic Society's Second Spring Show. Newcastle-on-Tyne [Spring Show]

WINTER-FLOWERING ERICAS.

NO plants at the present time are grown on a larger scale for purposes of decoration than softwooded or winter-flowering Heaths; yet their cultivation appears to be limited to a few individuals, who grow them annually to perfection, and then they are disposed of for decoration all over the country. These model specimens find their way into the majority of gardens, and finally, I suppose, to the rubbish heap. This must be the case, for seldom indeed are they to be found in private establishments well grown; in fact, their successful cultivation does not appear to be generally understood.

The greatest hindrance to their cultivation is probably the mistaken notion that they will not do well a second year, and that they cannot be well grown in the provinces. There is no foundation for such ideas, if only skill, time, and labour can be accorded the plants, as can be fully demonstrated. There is another evil through which hundreds of these Heaths are annually injured or killed. This results from crowding them amongst other flowering plants in conservatories or other similar structures. Fire heat is generally used in these structures, and often the plants have to be stood upon open trellises directly over the pipes, which dries them too rapidly. In addition to this, they are often carelessly watered, being either too dry or too wet, which only adds to the evil, and this is not the condition of plants in solitary instances, but in many places.

I do not intend to detail any system of propagation, for there is neither time nor convenience in private gardens to attend to this, and it is not necessary, for good plants can be purchased cheaply. I shall rather endeavour to detail their cultivation from the time they are in 4 or 5-inch pots, which will be more useful at this season of the year. The time to purchase the plants entirely depends upon what they are required for. If to be grown into large specimens, they should be obtained any time from the present up to June; if for decoration, buy them in the autumn when set with buds, which is the best in the majority of cases.

To grow plants on into a large size it is best to start with those that have never flowered, but have been prepared for flowering next winter. These will be healthy little plants in 5-inch pots, and could after received be grown in cold frames. Their young shoots will be 2 or 3 inches in length, and should be allowed to extend until June without being stopped, when the points of all their leading growths should be pinched out and the strongest tied out, bringing them gradually towards the rim of the pots. If kept close for about a fortnight they will break into growth again and should be transferred into pots 2 inches larger. After potting they must be kept close until their roots are working freely in the new soil, when they can again be grown in a well-ventilated house, as in the earlier part of the season. These plants may be again pinched in September, but not later, so that they can pass the winter safely with sturdy growths about 1 inch in length. These will not flower under

this treatment, but will form grand bushes 7 or 8 inches through, and will be in the most satisfactory condition for flowering the following autumn if grown without stopping. If larger plants still are required, grow them the second year subject to the same treatment of stopping, and potting when needed; but one shift will probably be ample; though this depends upon the quantity of roots made in the 7-inch pots early the second season.

Old plants, or those obtained in autumn, need every attention while in flower as regards watering and position if they are retained for another year. After they have flowered in any structure where a little heat has been maintained, they should not be placed in a cold greenhouse, or they will be checked after being excited into action; but should have a temperature at first very similar to that in which they flowered, and should be carefully and gradually hardened to cool treatment again. They should be cut close back after flowering, and if kept in rather a close atmosphere at first they will soon break into growth. In fact, *E. hyemalis*, *E. Wilmoreana*, and *E. melanthera* are benefited by being kept rather close until they commence growth; but this must not be attempted with *E. gracilis* or *E. caffra*, or they will soon become a prey to mildew, for they cannot endure a confined atmosphere.

There can be no doubt that the best time to repot winter-flowering Heaths is directly their roots are active in spring. Cut-back plants, for instance, will be ready as soon as they have made from half to 1 inch of growth. The sooner potting can be done in the season the better, before the sun has too much power. The longer water can be withheld after potting the better for the plants, because it gives their roots ample time to recover. The old soil, before being turned out, should be moist, but not too wet. The soil for these plants should consist of firm fibry peat and a liberal dash of silver sand. The former must be good and of a nature that will not become sour through watering quickly, at the same time it must not be too light. After the plants are turned out of their pots remove carefully the drainage from the base of the old ball, but do not attempt to liberate the roots, for this is injurious and often proves fatal.

The pots in which the plants are to be placed must be well drained. A large crock should be placed at the bottom, over this a few smaller pieces carefully arranged, on these some still smaller, and over all some of the roughest of the compost. In potting the collar of the plant should not be buried, and sufficient space must be left to hold plenty of water to soak the whole mass of soil. The new soil must be made firm in the pots to prevent water passing through it and leaving the old soil dry. Large shifts should not be given, those in 5-inch pots being placed into 7-inch, while *E. gracilis* and its varieties should have the smallest possible shift, for they appear to flower more freely when their pots become full of roots by the time growth is completed.

After potting, if the plants have been subject to ordinary greenhouse treatment during the past few weeks, they may be placed in cold frames and stood upon ashes, or a similar moisture-holding material. The position of the frame must be such that the sun will not strike directly upon the plants, to render shading necessary; but if such a position cannot be found, moderate shade must be applied during bright sunshine, at least until they are rooting in the new soil. The frame should be kept close until they are in this condition, giving a little air only during the middle of the day when warm. Early in the afternoon damp the pots and material upon which the plants stand, and if very hot syringe the plants lightly and close the frame. This treatment will soon induce an active growth, when more liberal ventilation during the day and at night, also when mild, will ensure a strong sturdy growth. All through the summer too much air cannot be given. The lights should be drawn off the plants both day and night; in fact, they should only be employed to protect them from heavy rains. They will, when

in this stage, do well outside in a sheltered position. They might be plunged, but very careful attention is needed in watering. Where the rainfall is heavy it is not advisable to stand the plants outside, but the lights should be in readiness to place over them. This is of the greatest importance in autumn when their flower buds are formed, for if they become saturated they will often turn yellow instead of coming forward. It must be understood that *E. gracilis* must not be kept close for too long after potting.

When *E. hyemalis* and *E. Wilmoreana* are growing freely, and it can be seen which shoots are taking the lead, a system of thinning out the shoots may with advantage be practised. Plants that have been cut back two or three times are apt to make a large number of small growths, but if some of these are removed those left will be much stronger and finer, for it is wiser to have a few well-bloomed shoots than a greater number of smaller ones. It will be seen in autumn whether these Heaths are going to flower well or not, and if any plants have not been sufficiently ripened they should be cut back without further delay, and when housed should have the same treatment as those that have been stopped for growing into large plants. In winter they require a light airy position in the greenhouse. They must be carefully watered, and although they like abundance of air cold draughts should be avoided.

These plants require light shade from the direct rays of the sun for a time after potting and during the early part of the season. Whatever material is used for this purpose it must not exclude light, and should only be applied when very bright. Overshading is a great evil; the plants draw up weakly and will not flower satisfactorily—in fact, more Heaths are ruined through overshading than would be the case if none was employed. The plan is to select for them a position during the early part of the season where the sun will not strike with all its force upon them, and then shading material will not be needed. In such a position, when the lights can be drawn off the sun will not injure the plants, but the pots must be protected from its rays. When a number of plants are standing together it is generally the outer rows that suffer.

The secret of growing *Ericas* is in a judicious use of the water-pot, for if they are badly and carelessly watered, it does not matter how good the other treatment may be, success will not follow. More Heaths are killed through becoming dry than from overwatering. The general opinion is that they should not be watered before they are dry. That is a great mistake, for they ought never be in that condition. If they suffer from an insufficient supply of water their silk-like roots are at once destroyed and the foliage turns yellow, death eventually ensuing. When watered they should have sufficient to soak the whole soil thoroughly. If one application will not do this they must have two or three, as the case may be. They should then be allowed to stand until they require it again. But all the moisture must not be evaporated from the soil before water is applied; it should, when water is required, contain sufficient to keep the roots from suffering. It is difficult to explain minutely when water is needed, for this can only be gained by attention, observation, and experience.

Heaths may be encouraged by liquid manure when their pots are full of roots, but I am no advocate for supplying them through the spout of the water-pot. The only artificial manure I have tried for these plants is Standen's, and it is very suitable. The smallest quantity only should be sprinkled upon the surface. Three or four applications during the season will be ample. Plants potted in the spring will not need it more than once.

Mildew is the greatest enemy these plants have to contend against. It is easily destroyed by dusting the affected parts with flowers of sulphur. In applying it dew the plants with the syringe, and the dry sulphur will adhere to the foliage, or it may be mixed in water and the plants syringed with it. When applied be careful that the sulphur does not fall upon the soil and be washed down when watering the plants. The

same care must be exercised when washing it off the plants after the mildew has been destroyed.—WM. BARDNEY.

MOWING.

THE mowing machine is once again brought into action. On cold clay soils lawns that have been pretty well cut in the autumn do not make much progress before April, but in warmer soils it has scarcely ceased growing all this wonderfully mild winter, and is now becoming untidy. If it is too long for the machine it is much better to mow first with the scythe than to strain a machine in the endeavour to make it do work it was never intended to do. After the grass has been mown with the scythe and swept up it should be well rolled, and a few days afterwards the machine should be run over it in the usual way. If mowing with the scythe is not necessary let the lawns be well rolled a day or two before placing the machine upon them, and see that they are quite clear of stones, especially near walks where loose gravel is in use, as it is liable to be lifted with the foot or kicked on to the edges, and is very injurious to the machine.

It is a great mistake (one that is very frequently made) to set the machine to cut very close. The beauty of a lawn consists not so much in its shortness as in the evenness of the sward. When cut very closely it is much more liable to be burned in dry hot weather, there being nothing to protect the roots from the sun. The setting and keeping in working order is a matter that needs some little care, and as far as possible one man should always see to it. The first point is to adjust the knives to the sole-plate, so that it just touches, but they must not press against each other, or the mowing will be harder work, and there will be more wear on the machine than there need be. To regulate the height of the front rollers turn the machine on its side, place a straight-edge across the drum and front rollers, and measure the distance from the straight-edge to the sole-plate. The latter should stand about half an inch above the straight-edge. When the machine has front rollers it may be a little less, and when castors are substituted it may be a little more, as in wet weather the weight of the collecting-box makes the latter sink into the turf more than continuous rollers would do. Once or twice during the season the cylinder set screws will want turning a little closer, being careful to adjust both sides exactly alike. Other points in the management of a machine are to see that it is well oiled, and that the oil and grass are wiped off before it is put away after use.

It is not my intention to enlarge on the merits of the various machines, all of which, according to the various makers' ideas, are the best extant. There are not many gardeners who can boast of having had experience of all the machines in the market, and it is therefore the more difficult to decide which is the best. It is not so much a question as to which will give the greatest satisfaction when fresh from the maker as it is a matter of which will be found in the best condition at the end of three or four years. My opinion is that most if not all the machines now made are well suited to their work, and really more depends on the manner in which they are worked and kept in proper order than there is in selecting this or that maker in preference to others. Green's may be mentioned as a thoroughly tested type of our English lawn mowers, both as to their work and their durability. I have had experience of Green's for many years, and for an open level lawn I think it is excellent; but when mowing close up to overhanging edges of flower beds, or shrubberies, or on sloping banks it is not so suitable as some of those light handy machines of which the "Archimedean" was the forerunner. There is now a variety of these to choose from, all with their gearing neatly enclosed, preventing any chance of their getting entangled in any overhanging object, and they are equally adapted for working on sloping ground.

Large *versus* small machines is a question that has been previously discussed. Where there is a great extent of lawns comparatively open and but few trees and shrubs of course a horse or pony machine is preferable, if for no other reason than that it places the real hard labour on the shoulders of the horse instead of the man; but where lawns are crowded with specimen trees and shrubs it is very much better to have two or three small hand machines instead; and I also think that machines of 12 or 14 inches width are preferable to those of a larger size. Suppose, for instance, that a man and a lad work a 22 or 24-inch machine, and other two are working a 14-inch and a 12-inch, there is a gain in the space covered. Generally speaking I think it will be admitted by practical men that 20 inches is enough for a man and a lad to mow and collect the grass, while they will, with a light machine each, mow and collect 26 inches with little more exertion.

Another debatable question in connection with mowing is the collecting or non-collecting of the grass. Some have a great objection to leaving the grass on the lawn, and no doubt it is objectionable when the grass is allowed to grow too rank before mowing.

This, of course, is the fault of the workman, not of the system. Those who advocate having the grass uncollected also recommend more frequent mowing. As one who has practised this for some years I shall briefly state my reasons for doing so. In the first place the work is much lighter. Secondly, there is no stoppage to empty the grass-box, nor time lost in wheeling it away, consequently the work is much sooner done. Our mowing (without collecting) takes five hours' steady work, but when we put the grass-boxes on to the same two machines, with the same three men, it takes seven hours' hard work. Thirdly, the more frequent mowing keeps the grass in better condition. We mow every fifth day, consequently it is always in condition, and the little grass is scarcely ever noticed on the surface; but even this little scattered so frequently on the sward must benefit the lawn to some extent as a manure. Fourthly, although more frequently used there is really less wear on the machines, because there is never any strain put upon them, as is the case when mowing a very thick sward of some eight or ten days' growth. A day's work at this sort of mowing will sometimes do more harm to a machine than three or four days' light mowings. It is not necessary that only a certain make of machine be used for scattering the grass. I have long used Green's for this purpose, and though it certainly would be better if it was modified for the purpose of distributing the grass, still there is not much to complain of in this respect.

For mowing banks and round flower beds we use a small 14-inch "Coventry," and for this purpose it is admirably adapted. When mowing steep banks a rope is fixed to the centre of the machine, where the height of the handles is regulated. A lad by means of this rope keeps the machine from slipping down the bank, and at the same time assists to pull it along, while the man at the handles guides it. Where a rope cannot be used on account of shrubs or other obstacle on the top of the bank, the lad may hold it in position from the bottom by means of a stick with a hook in the end of it applied to the same part of the machine as the rope. It is a mistake to mow anywhere with a scythe when it can be done with a machine.

—A WORKING GARDENER.

ASPARAGUS PLUMOSUS.

Two more beautiful plants for the stove and warm fernery than *Asparagus plumosus* and *A. plumosus nanus* cannot well be imagined. They are quite distinct, so much so in fact that I consider no collection complete without plants of each of these elegant South African *Asparagus*. The older *A. plumosus* is climbing in habit, and is particularly well adapted for furnishing pillars as well as the lower portion of the rafter of the houses. At one time we grew it in the form of a bush, but found when the growths could encircle pillars or strong stakes they grew to a much greater length, and formed a greater number of elegant and beautifully green sprays. A pillar furnished with a strong plant covered with its diminutive white blossoms is pleasing to the most indifferent observers, while small plants in 4-inch pots are particularly pretty and serviceable for associating with flowering plants in the rooms of dwelling house and elsewhere. The sprays in a cut state are also much valued for using in bouquets and vases, as in addition to their lightness they are very durable, remaining fresh much longer than the fronds of any *Adiantum* with which I am acquainted. It can be rapidly increased, as the tiniest piece of spray when about three parts matured and older strikes like a weed, especially if placed in a moist heat and kept close either under bellglasses or a propagating frame. From one plant we quickly raised fifty, and the second season we could easily have struck five hundred if they had been required. I still consider it the better variety of the two.

A. plumosus nanus also grows most vigorously; and the peculiarly flattened formation of the growth which it invariably assumes at a proportionate height from the soil renders it very attractive and distinct. The fine foliage is more dense, which gives it a richer green shade than the climbing variety, but those constantly observing the two sorts tire soonest of the formal habit of the dwarf form. Unfortunately nothing will induce the spray of *A. plumosus nanus* to strike root; and as a careful division of the crowns is the only alternative propagation is both slow and risky. At any rate I advise those in charge of small plants not to be in a hurry to increase the stock, or they may find they are losing ground.

The cuttings in one case and the divisions in the other are best potted singly into small 60's, or if extra strong into any size into which they will fit readily, any light sandy soil suiting them. They must be kept in a moist heat, and shaded from bright sunshine till well established, and be gradually potted before they become much root-bound. Both varieties as they gain in strength will at regular intervals push up strong shoots, and if extra large plants are required they should be given liberal shifts and a rough rich compost. I find the best time to repot is when the last-formed growths are nearly matured, and also that they delight in a compost consisting of two

parts of roughly broken fibrous loam, one of turfy peat, with the addition of a little manure, charcoal, and silver sand. When well established the plants require abundance of moisture at the roots, and will be benefited by frequent supplies of liquid manure.

At the outset I was informed that the older variety would succeed in a greenhouse, but found they grew very indifferently in a cool airy house; in fact to have them in perfection they must be kept in a moist, warm, and shady position. Bright sunshine is ruinous to them, causing the eventual loss of the foliage, this being a check from which they do not quickly recover. The only insect pest to which they appear to be liable is mealy bug, but as these are very conspicuous no



Fig. 73.—*Narcissus incomparabilis* James Dickson.

difficulty is experienced in getting rid of them by hand-picking, provided they are not allowed to get thoroughly established. In this case the paraffin mixture would be necessary.—W. IGGULDEN.

NARCISSUS INCOMPARABILIS JAMES DICKSON.

THE Peerless Daffodil has yielded great numbers of handsome varieties, which have taken their place amongst the finest of the whole genus, and in popularity are inferior to none. A glance at one of the catalogues devoted to *Nareissi* or a visit to the London flower markets is sufficient to prove this. Of the few double Daffodils that are really appreciated, too, the forms of *N. incomparabilis* are pre-eminent, and with the double *Poet's Narciss* are most useful, the flowers lasting exceedingly well in rooms, and they have not that heavy and malformed appearance which is so noticeable in the *N. Pseudo-Narcissus* double varieties. There is, however, much less diversity in the double Peerless Daffodils than in the single forms; as in the latter there are not only

the ordinary deviations from the type, but by crossing with *N. poeticus* a series of distinct groups of hybrids have been produced, some of which combine in a remarkable manner the characters of both parents. Still, the whole of the *N. incomparabilis* family is very distinct, and Mr. Hibberd's idea of grouping these under the title *Chalice Daffodils* is not a bad one in a popular point of view.

Distinct in an unusual degree from the multitude of these *Chalice Daffodils* is the magnificent variety represented in fig. 73, and for which Messrs. James Dickson & Son, Chester, were awarded a first-class certificate at Kensington recently. So distinct, indeed, is it that some little difference of opinion was expressed amongst the *Narcissophiles* as to whether it was really a form of *N. incomparabilis* or not. The cup is so much larger and longer than is ordinarily seen in that species that the doubt lingering in some minds was excusable. Mr. F. W. Burbidge, however, gives the weight of his authority in favour of *N. incomparabilis*, and is, we understand, responsible for the varietal name bestowed upon it. There appears to be some evidence tending to show that the variety occurs in the north of England in a wild state, and it is said that flowers are frequently seen both in the Liverpool and London markets so that it must be abundant in certain districts if these statements be correct. It was sent to Dublin from Messrs. Dickson, and by them flowers were exhibited at Kensington. Perhaps some of our readers can add to this moderate history.

The flowers are of wonderful size, fully 4 inches in diameter across the petals. The latter exceed an inch in diameter, and are sometimes nearly $1\frac{1}{2}$ inch, elliptical in form, very thick and substantial, and of a pale but clear bright yellow. The crown or chalice is very handsomely proportioned, $1\frac{1}{4}$ or $1\frac{1}{2}$ inch in depth, and as much in diameter at the mouth, which has a slightly but regularly waved margin, and in colour is of a bright but not dark orange tint. The whole flower has a noble imposing appearance, which at once attracts attention.

PEAS IN POTS.

As a strong proof of the adaptability of the dwarf Pea known as *American Wonder* for early forcing, I may state that I have to-day (April 7th), gathered a good dish of Green Peas from the above variety. The seed was sown in 8-inch pots on January 16th, and placed in an early vinery until the plants came into flower, after which they were removed to the front stage of our early Peach house. There they have abundance of air night and day, and promise to afford several dishes. My employer pronounced their flavour excellent. I find they are as easy of culture as French Beans, the only difference, in fact, being the Peas need more air than the former. I do not call attention to this as being an extraordinary achievement, as others, including Mr. Barker of Hindlip, have accomplished the same thing, but my object is to point out the superior merits of this dwarf Pea for early forcing. Everyone with a vinery or Peach house may with very little trouble command a few dishes of Green Peas at this time of year.—T. W. SANDERS.

NOTES ON ORCHIDS.

FUMIGATING COOL ORCHIDS.—I am of opinion that slight fumigations of tobacco smoke, provided the material used for that purpose is good, will not prove injurious to cool Orchids. Many good growers fumigate freely, but I do not consider it a wise or a safe practice. What will suffer from fumigations of tobacco smoke sooner than *Cœlogyne cristata* or even *Disa grandiflora*? but the latter is not affected if the application is not too strong. I should say the fumigation given to "W. W.'s" plants has been the cause of injury, for I once saw some fine healthy plants affected in the same way by an overdose of smoke. I have discontinued subjecting my cool Orchids to tobacco smoke, and have found the plants have done better since. Aphides are the greatest enemy to these plants, and some attention is needed to keep the plants free even when tobacco is employed. I obtained a spray distributor and insert it into a bottle filled with a weak solution of tobacco water or Fir-tree oil. The former I prefer, although the latter is the cleanest. This is a ready way of destroying aphides, and does not occupy much time than fumigating.

YELLOW THRIPS.—This is the most destructive little pest the Orchid grower has to deal with, as it makes serious ravages on *Aerides*, *Vandas*, *Cattleyas*, or any other Orchid. It is very difficult to eradicate, and if this is attempted by the aid of tobacco smoke alone much injury would be done to the plants before it could be destroyed. A few years ago it was brought here upon some newly purchased plants which were stood amongst others and unnoticed; it soon gained a good footing. The course alluded to was adopted, but did not prove satisfactory, so other means were tried, which proved successful. A number of small camel-hair brushes and a jar of nicotine soap were

obtained, and three or four men commenced sponging them with a weak solution. One man followed with one of the small brushes, and applied the solution liberally to the axils of the leaves where it is impossible to place the sponge. All the plants, whether any thrips were upon them or not, were so treated; and before the solution had time to dry it was drained out, the plants washed with clean water and stood in a clean house. When all had been done the house was thoroughly cleansed and heavily fumigated two or three nights in succession, and then the plants returned to their former position. As they were brought back they were dewed with the syringe, and tobacco powder applied by means of a distributor. This was left on for about two days and then washed off. This did not exterminate all this troublesome thrips, but we dressed the plants frequently for a time at short intervals and eventually exterminated it, and have never been troubled since.—SCIENTIA.

ORCHIDS AT FERNFIELD, BRIDGE OF ALLAN.—Dr. Patterson sends us a box of beautiful Orchid flowers, which abundantly prove by their size, strength of spike, and rich clear colours how well his system of culture suits them. Of *Lycaste Skinneri* a dozen blooms were sent, all distinct varieties, differing in the size of flower, breadth of sepals and petals, and depth of colour in the lip. In some the sepals are pure white, the petals flushed with rose, and the lip rich crimson with a central white stripe and a few spots; in others the sepals are tinged with rose, as well as the other portions of the flower; in a few the lip is very faintly tinted, nearly white, but the more highly coloured forms predominate. *Odontoglossum Halli* is represented by a very strong spike of eleven handsome flowers, large and heavily mottled with dark brown—a superb variety. *O. Halli leucoglossum* is a lovely variety with a pale yellow ground colour, the sepals and petals bearing towards the apex broad circular brown blotches, but near the base are a series of narrow oblong bars; the lip is white with a yellow fringe at the base, and two or three brownish spots. The contrast of colours in this variety is most pleasing. Of *Odontoglossum triumphans* a magnificent variety is sent, the spike bearing nine large and richly coloured flowers, very suggestive of *O. grande*. The flowers are $3\frac{1}{2}$ inches in diameter, the petals three-quarter inch broad, deep golden yellow, with numerous rich brown spots and blotches; the lip is $1\frac{1}{4}$ inch long and three-quarters broad, pure white at the base, and brown at the tip. It is one of the finest varieties we have seen. *Cœlogyne ocellata maxima* is distinguished by its large flowers, $2\frac{1}{2}$ inches across, pure white, except for the yellow-tinted lip. *Rodriguezia planicaulis* has pale greenish yellow flowers, very small, with wavy sepals and petals, but pleasantly fragrant; and *Chysis bracteosa* is represented by a spike of six ivory-like flowers. Such a choice collection as this is always most welcome, and considering the distance the flowers had travelled their freshness was surprising.

ODONTOGLOSSUM PESCATOREI.—At one of Mr. Stevens' sales last week a grand specimen of this beautiful Orchid was offered, and after some competition was sold to Mr. W. Bull for twenty-five guineas. This plant is reputedly the finest in Europe, having been in the Trentham collection for seventeen years, and is thus really a genuine specimen. It is in most robust health, with six panicles, comprising a total of 180 flowers, not individually large, but of good general outline; the petals broad and rounded. It was much admired at the King Street rooms, and will form an attractive feature in Mr. Bull's nursery for some weeks.

SPECIMEN PHALÆNOPSIS SCHILLERIANA.—At one of the recent meetings of the New York Horticultural Society a magnificent specimen of the above Orchid is said to have been shown from the garden of Mr. Dinsmore at Staatsburgh. According to the Secretary's note in the *American Gardeners' Monthly* this plant was in superb condition, most healthy, bearing six spikes with a total of 246 flowers. Rarely do we see such a grand specimen in this country.

SALE OF ORCHIDS.—At Mr. J. Stevens' sale on the 9th inst. there was a handsome display of Orchids in flower, the room presenting a beautiful appearance. Several magnificent varieties of well-known Orchids were entered, and the prices were mostly good. A dark-flowered variety of *Cattleya Mendeli* realised $8\frac{1}{2}$ guineas; *Odontoglossum Alexandræ* was admirably represented, one extremely fine rose-coloured variety being sold for 24 guineas; and another, also distinguished by its large symmetrical flowers, fetched 14 guineas. A fine specimen of *Odontoglossum Andersonianum* with six flower spikes was sold for 10 guineas; and an unusually beautiful variety of *Dendrobium Jamesianum* realised 15 guineas. A small plant of a large-flowered dark-coloured *Odontoglossum vexillarium* was sold for the long price of 26 guineas, a striking instance of the value attached to fine varieties, for good plants of fair forms of this *Odontoglossum* are sold at a less number of shillings than this one realised guineas. In addition to these the wonderful specimen *Odontoglossum Pes-*

catorei already noted was included in this sale, with many other rare or choice varieties.

PRUNING DENDROBIUMS.—Judging from the animated discussions which have taken place lately, the subject of pruning Dendrobiums is likely to become a favourite theme. The real question at issue is, "Whether it is prejudicial or not to the health of the plants to remove old spent pseudo-bulbs annually." I have no hesitation in saying as the result of my experience that this removal is not prejudicial, but, on the contrary, is really beneficial. Of what possible use can old withered pseudo-bulbs be in either storing up sap or nourishing the young growths? Surely if we reason by analogy it cannot be more injurious to Dendrobiums than to Hydrangeas or similar plants where the growths that have flowered are cut away to make room for the new ones. The statements of some of the controversialists that the old pseudo-bulbs are necessary to support the young growths is incorrect, as I have proved from experience similarly to "B., Sussex." Dendrobiums have a bountiful supply of roots wherewith to absorb the food necessary for the support of the young growths without depending on the pseudo-bulbs.

My experience of pruning Dendrobiums is similar to that of "B., Sussex," except that the current year's growth does not start from the base of the pseudo-bulbs cut away, but from those of last year, which will in the ordinary course flower next season. "B., Sussex," has evidently fallen into error on this point, and it would be well if he stated his mode of pruning Dendrobiums more clearly. We have never yet seen Dendrobiums having growths as fine as those described by "B.," where old pseudo-bulbs had been allowed to remain on the plant.—V.

FRUIT PROSPECTS.

THE prospect of most hardy fruits is very encouraging this year owing to the fine weather. The more delicate wall fruits (such as Apricots, Peaches, and Nectarines) are very promising; the blossoms have been unusually strong and fine, and are setting well. Seldom of late years has such a display of Plum flowers been seen. The size and quality of some of them are remarkable, many of the expanded blooms being nearly 2 inches in diameter. The Pears both on walls, bush, and pyramid trees are flowering unusually well, and the same remark applies to Cherries, Apples, and Gooseberries.

Most vegetable seeds are germinating satisfactorily under very favourable circumstances as regards weather. Potato-planting is well in hand, and the outlook generally is very encouraging. Owing to the late genial showers vegetation is making rapid advance.—A. O. W.

THE SHRUBBERY IN SPRING.

THE first plant to bloom was the lowly *Erica herbacea carnea* followed by *Daphne Mezereum* in February; *D. Fortunei*, with its lilac flowers, coming in at the same time. The first real show was made by the Almonds, their flowers being quite effective at a distance. They show best when treated as standards, and flower most profusely in a light soil as the wood becomes ripened; in fact in a wet soil or cold one the wood is often injured by severe weather and dies back. Similar remarks apply to the double Chinese Peaches (*Amygdalus sinensis alba plena* and *rosea plena*), which succeed the Almonds in flowering, and are followed by the Peaches (*Amygdalus persica*), and are very fine where they do well, but are at best tender, being liable to gum, and trees of large size are rarely seen.

Cornus mascula variegata is by no means despicable, as its bright yellow flowers, which are produced abundantly before the leaves and during the early spring months, ought to secure for it a place in every shrubbery. The Cornelian Cherry is not remarkable after flowering, but the variegated form is one of the finest of hardy shrubs, and is useful both for flowers and foliage. Trained as a pyramid it is very tractable, being kept in shape with very little pruning.

The most showy of the shrubs flowering this year in March were *Forsythia Fortunei* and *F. suspensa* (what is the difference?) the flowers being borne in profusion along the branches and of a bright yellow, and certainly ought to be in every shrubbery. Being of somewhat straggling habit any irregularities of growth can be cut in after flowering, and every encouragement given to form young growths, on which the flowers are most abundantly produced. *F. viridissima* is poor compared with the others, flowering very much less freely, and is not nearly as effective.

Spiraea prunifolia flore plena has pure white double flowers, very freely produced. It forms a somewhat spreading bush about 5 feet in height. The flowers are borne along the branches, and it is of graceful habit.

Mahonia aquifolium, with its bright golden clusters of bloom, is very effective, and is useful for margins and banks, not the least of its attractions being its evergreen character and the profusion of its large purple berries in autumn. *Berberis Darwini* is unquestionably the finest of the family, its rich drooping racemes of golden flowers in contrast with the deep green foliage being very striking. *B. Jamiesoni*, with its pale lemon flowers, is pleasing. *Mahonia trifoliata*, with noble foliage

and large heads of yellow flowers, is well worth a place, giving it a sheltered situation.

Andromeda floribunda forms one of the neatest of dwarf evergreen shrubs, and is mostly covered with its Lily of the Valley-like bells, white and fragrant. It does best in peaty soil, but is not any more particular in this respect than *Rhododendrons*.

Azara microphylla is a neat shrub, its deep shining green leaves and drooping habit rendering it desirable. The flowers are hidden under the foliage, but it cannot fail to please on account of the fragrance. *Ribes* are flowering strongly; they are indispensable, and grow nearly anywhere. *R. sanguineum*, *R. albidum*, and *R. Gordonianum* are the best. The *Ribes* should, from their free-flowering and effective display in the shrubbery, be grown extensively, but not to the extent of precluding others equally showy; indeed, shrubberies should be so arranged as to afford a succession throughout the year. *Kerria japonica flore plena* with its golden flowers is very showy and well worth a place, being as hardy, and does not need the protection of a wall except in exposed situations.—G. ABBEY.

LILIUM AURATUM.

WHY have so many imported bulbs of this Lily perished under cultivation in this country? Various theories have been advanced in answer to this question, and I submit that there has been too much of theory and too little of practice brought to bear upon it. It is neither creditable nor desirable that a difficulty should be suffered to become a mystery, and yet it must be acknowledged that a very general feeling of doubt exists as to the possibility of keeping the magnificent bulbs of *L. auratum* which come to us direct from Japan by tens of thousands every year in a healthy improving condition after the first year. I, for one, must own to having lost every one of a certain number of such bulbs a few years ago; nor was I much surprised at the loss, for the bulbs were planted in newly made shrubbery borders in very poor soil, and left without any particular subsequent care to struggle for bare existence amid a host of all sorts of wild growth which sprang up around them and could not be destroyed until it was too late. This slovenly practice was unavoidable amidst the thousand and one matters pressing upon our attention in a new garden made under circumstances of exceptional difficulty.

In the last number of the Journal of last year I explained in full detail another and certainly a fairer trial with fifty bulbs, which had so far proved successful—that is to say, each bulb had thrown up a strong growth, which had afforded a delightful succession of fragrant blossom for upwards of three months. The bulbs were left undisturbed in the soil and some finely sifted coal ashes spread upon the surface to exclude frost. All of them are now growing so much stronger than last year—most of them having two stems so sturdy and robust, that I feel justified in recording a success which points to still better things in future.

One of the most important points in the cultivation of these bulbs was undoubtedly promptitude in potting them immediately after the purchase, for the flaccid condition of the bulbs then clearly betokened exhaustion from being kept out of soil and exposure to the air. Plunged among and under a bed of coal ashes in a cold frame in pots of moist soil the bulbs soon became plump and firm again, and root-action followed, so that when they were turned out into the borders in March the pots were found to be well filled with roots, and the growth was pushing strongly. The same course was followed with another batch of imported bulbs purchased for this season in case of failure with any or all of last year's supply, and with precisely similar results thus far.

So far, then, as this trial may be taken for guidance in subsequent practice, it shows that the imported bulbs should be purchased as early in the season as possible. Each bulb should be potted separately in a 6-inch pot and forthwith plunged in a bed of coal ashes—not necessarily in a cold frame, but preferably where they can be overlooked occasionally. A rich, porous, well-drained bed of soil should be prepared for them, and they should be turned out of the pots and planted in it early in spring. Once planted they should not be disturbed, and frost should be excluded from the soil by a mulching in autumn of coal ashes or cocoa-nut fibre. Avoid exhaustion of the bulbs by exposure to the air and being kept out of the soil. Avoid planting in poor, thin, or undrained soil; do not plant all your stock in one bed fully out in the open, but plant some in sunny places, some in partial shade, and so prolong the succession of flowers.—EDWARD LUCKHURST.

PURPLE SPROUTING BROCCOLI.—For the past month I have been cutting beautiful tender little heads of this delicious vegetable, and a neighbouring gardener, who has to supply a family of epicures, tells me

it is preferred to Seakale or Asparagus. It seems more delicate in flavour than the white variety, and boils beautifully green. A medical gentleman tells me it contains a larger per-centage of potash salts, so necessary during the spring months, than any other member of the Brassica family. It is a mistake to have it fit for use before the present time. No other Broccoli is hardier than this.—W. J. M., Clonmel.

PENTSTEMONS.

THERE is now a large number of florists' varieties of this beautiful genus, but I do not intend making any remarks upon them in this notice, but will confine myself to the other forms, which for convenience we may call species, that constitute a very important series in the Californian Flora. There is much for everybody to admire in them, but especially are they to be appreciated by those enthusiastic in the cultivation of herbaceous and alpine plants. Some of them it is true are not quite hardy, and consequently it is necessary to keep a certain number under protection during the winter. This may be done by striking cuttings during the summer, or by saving seed, which most of them produce freely; but if planted in a well-drained sheltered position only a few of them will succumb, hence if these species are to be kept it will be necessary to adopt the precaution alluded to. Most of them prefer a light well-drained soil and a sunny position in different parts of the rockery or in small borders. The habit of some is especially suited to the rockery, such as *P. procerus* and *P. humilis*. These are both dwarf-growing and very profusely flowering that they should be in all collections of alpinists forming decumbent shoots, which root freely from the under side, and ultimately produce spreading cushions of evergreen growth covered during the season with their pretty racemes of flowers. The more tender kinds should be planted at the foot of a sunny wall, where they would be protected during the winter; in fact this plan usually affords sufficient protection to keep them alive. I have now good plants of *P. cordifolius* and *P. breviflorus* which have occupied the same position three years, and last season they came up very strong, although cut down by the previous winter, and other plants in the open border were quite killed. *P. Jaffrayanus*, a most lovely species, is perhaps the most tender of all, and it is needful to sow a pinch of seeds yearly or strike cuttings.

No hardy-plant grower has been more energetic than Mr. W. Thompson of Ipswich in the introduction of these charming plants; each season for some years past he has distributed one or two fresh sorts, all of which are well worth growing. I have raised and grown nearly, if not quite, all the Pentstemons which have appeared by name in the various catalogues and collections, and in some cases there have been duplicate names, which of course have been discarded, while other names have been authenticated, and numerous notes have been made upon them during several years. I have often noticed in raising a batch of seedlings that, like all other plants, there is more or less of variation, not so much in the foliage as the colour and size of the flowers, details which botanists should not take seriously into consideration, but which indeed may have been the bases upon which some of the names may have been founded. Seeds of nearly all the species are easily raised in well-drained pots of sandy soil placed in a cold frame or cool house, and if the pots are covered with slips of glass the necessity for watering will be reduced to a minimum, but never allow them to become dry. The seeds of some are very slow to germinate—for example, those of *P. antirrhinoides*, which I have known to remain for five or six months, and rarely more than a few seeds germinate; this may be due to the great length of time which elapses between the gathering and sowing the seed. Other species which I do not now remember have behaved in the same way. Cuttings may also be rooted in pots placed in a cold frame, roots forming in a few weeks, especially if a heel is left to each. I will now give brief descriptions of the species with which I am acquainted, although I am not certain as to the authorities for some of the names; nevertheless they are all distinct and well worth growing.

P. acuminatus, Dougl.—A pretty species, known also under the name of *P. nitidus* of the same author, but well figured under the name here adopted in Lindley's "Botanical Register," t. 1285, and is a native of N. America, being widely distributed throughout the States. It grows from 12 to 18 inches high, with ovate-lanceolate, acuminate leaves, with numerous flowers disposed in a virgate panicle, the corollas being $1\frac{1}{2}$ to 2 inches long, rich purple, with very open throat and large spreading lobes, appearing from July to September. The seed vessels are conspicuously acuminate, upon which character the specific name is based.

P. antirrhinoides, Benth.—A less common species than may be supposed by the name, but is synonymous with *P. Lobbii* of our gardens. It was figured under the latter name in the "Illus. Hort.," 1862, t. 315, and under the name here adopted in the "Bot. Mag.," t. 6157, and near what is described by Lindley in the "Bot. Reg.," t. 1946,

under the name of *breviflorus*. Certainly there is a slight difference in colour, but both are yellow, this plant usually producing clear yellow flowers. Other small deviations may be noted, but I think if a good series of specimens of both were examined they would prove to be identical. It is a copiously branched plant, very leafy, growing from 1 to 4 feet high, with small oblong or oval entire leaves about half an inch long. Flowers solitary, terminating small leafy shoots, with a very broad lemon-coloured corolla about two-thirds of an inch long, with wide gaping lips, a most curiously formed flower. One distinction which is said to be important in the true *P. breviflorus* is that it produces from two to several flowers in racemose panicles, which, however, I have never seen, and it may be after all very doubtful if the right plant is now under cultivation at all. Native of Southern California, flowering in August and September.

P. azureus, Benth.—A beautiful species, widely distributed throughout California, flowering with us from July to September. It grows from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet high, smooth and slightly glaucous throughout, with lanceolate entire leaves and many-flowered racemose panicles; corolla about $1\frac{1}{2}$ inch long, much dilated above, sky blue



Fig. 74.—*Pentstemon cyananthus*.

or blue violet, frequently with a reddish tube. This handsome species is rather tender, and consequently should be planted in a warm position. I have had at least two different plants under this name—one, a very slender-growing and dwarf plant, proved to be *P. deustus*, quite distinct in every way.

P. cyananthus, Hook.—A most beautiful blue-flowering perennial, bearing a spike more than a foot long. It is an inhabitant of the upper valleys of the Plate River, in the Rocky Mountains, where seeds were collected by Mr. Burke. From these seeds plants were reared by Messrs. Lecombe, Pince, & Co., in whose nursery at Exeter the plants flowered in the open air in May, 1849. The species is quite hardy, and a great acquisition to our flower borders. It is desirable to have a succession of young plants always on hand, which may be raised by cuttings early in the summer, and which should be sheltered in a frame during the winter, but with as much exposure as the weather will allow.

P. barbatus, Gray.—This old-fashioned and very showy species is very frequently called *Chelone barbata*, and is highly appreciated; it was figured under this name in the "Bot. Reg.," t. 116, where it is stated that it was introduced from Mexico in 1794 by Sir Joseph Banks. It has a sub-woody rootstock with lanceolate-spathulate leaves, and tall panicles carrying numerous flowers; corolla from 1 to 2 inches long, rich orange scarlet, with a rather narrow tube, and spreading lips. It flowers from June to September, and thrives well either in the border or on the rockery. The effect of its straggling panicles is very pretty upon the rockery. There are slight variations in the plant both in the leaves and colour of the flowers, and these

have been accommodated with the varietal names of *coccinea*, *Torreyi*, and *antwerpensis*.

P. campanulatus, Willd.—A very old and pretty free-growing species, but not often seen now, flowering profusely from April to September; a figure of it occurs in the "Bot. Mag.," t. 1878. It grows from 12 to 18 inches high, with very leafy stems terminated by racemes of flowers. Leaves narrow lanceolate, entire, bright green; corolla about an inch long, light purplish red, with a slightly spreading throat. This grows well almost anywhere, and is perfectly hardy. Common in North America.

P. centranthifolius, Benth.—A handsome and rather scarce species, well represented in the "Bot. Mag.," 5242, flowering with us from July to August, introduced from Southern California, where it occupies open and dry positions. It grows about 2 feet high, is quite glaucous, with ovate-lanceolate sessile leaves and narrow panicles of flowers; the corolla is from 1 to 1½ inch long, tubular, but very narrow, of a bright vermilion scarlet colour, with small slightly spreading lips. I quite think this is tender, although my stock would not allow of any portion being exposed, but I hope to plant out some in spring which will take their chance next winter.

P. Clevelandii, Gray.—This is also a little known but very elegant species, growing from 2 to 3 feet high, with oblong-lanceolate, sharply toothed leaves, and tall slender panicles of flowers on long slender pedicels; corolla rather less than an inch long, sub-funnel shaped, of a rich crimson colour, distinctly two-lipped, with short spreading lobes. Native of California, and but recently introduced, flowering here in August and September, and is extremely graceful in appearance.

P. Cobaea, Nutt.—A very showy though variable species, introduced from the Western States of America about 1835, and figured in the "Bot. Mag.," t. 3465. It grows about 2 feet high, with large lanceolate obtusely-toothed leaves, and stout panicles of large bell-shaped flowers, varying in colour, usually purple and white, sometimes red-shaded, much dilated at the mouth, with spreading lobes. There is also a distinct variety recently introduced, I think by Max Leichtlin of Baden Baden, named *purpurea*, which is a vigorous grower, producing large panicles of deep purple flowers. Any form of *P. Cobaea* is worth growing, and they are quite hardy, flowering from August to October.—PENTAS.

(To be continued.)

NOTES FROM MY GARDEN IN 1883.

GREENHOUSE.

THE query of a correspondent suggests to me that I may as well give my experience of my greenhouse during the past year. With regard to the treatment of that most lovely Orchid *Disa grandiflora*, I have now two pans of it (I use Dominy's Orchid pans), and it is impossible for anything to be more vigorous and healthy than they are. One is filled with a very large number of growths of all sizes; the other contains three fine growths, which will, I hope, all give me five or six blooms and a few smaller ones. I cannot understand how it can be infested with green fly, for I am quite sure no aphid could for a single day withstand the treatment it would receive from me.

As in the cultivation of most plants that require peat, a good deal depends on the character of that used. There is peat to be got in this neighbourhood, but it is so utterly dead and soddened that to use it for potting purposes would be to insure the death of any plant which was treated to it. I once had a lot of *Disa* which I lost, and simply, I believe, owing to the bad character of the peat. This has made me very careful, and of late years I have only used Epps' selected Orchid peat, full of fibre and very sweet and clean. This, with a few pieces of charcoal about the size of walnuts, is all that I use. Some recommend sphagnum to be mixed with the peat; but I have never used it, and as my plants have done so well I think the good old maxim, "Let well alone" is applicable in my case. In potting I fill the pan about half full with drainage, and then put in the peat quite coarse, with the lumps of charcoal inserted here and there in it. I then place the bulbs in it, and fill up; they receive a good watering, and from this time out get a liberal supply of it, given with a syringe. I never go into the greenhouse without taking a syringe and giving it a little. Its native habitat being the top of Table Mountain, on which heavy clouds generally rest, the plant when in a growing state is subjected to continual moisture, and this treatment suits it. I always repot immediately after flowering, when the young growth has started; the pans are then placed close to the greenhouse door, and there they remain until the cold weather sets in. At that time they are removed to the upper and warmer part of the house, so that if there should come a snap of frost for which we were unprepared they might not suffer. As soon as the danger from this is over they are moved to the door again, and there remain until the flowering is over, receiving, as I have said, three or four syringings daily. Under this treatment it is impossible for green fly to exist, and I have never seen one on my plants. The only thing I was ever troubled with was a curious eating away of the epidermis of some of the leaves, which completely browned them. I sent up some of the leaves to microscopists, but got but little satisfaction as to either cause or remedy; however, as they did not seem to injure the plants I did nothing, and they have not troubled me since. Now, all this treatment is very simple, and I am

sure that if these conditions are observed it is one of the easiest greenhouse plants to grow with which I am acquainted; and what a lovely and enduring flower it is! I took one of my plants to a county flower show last year, and six weeks after the same flowers which had attracted much attention there were still fresh.

I am this year trying a few *Masdevallias*, but whether I shall succeed with them is a matter of question. I fear whether the heat in winter will be sufficient for them. At present they look fresh and healthy, but time will show. Another plant on which I pride myself not a little is the *Lapageria*. I have, as I mentioned last year, two plants—one each of *rosea* and *alba*. I planted them last autumn in large pots 18 inches in diameter, and put them on a low stage at the far end of my small house, my object being to train them up at the end and bring them over the central path of the house, so as not to interfere with the plants on the stages, and in this I have thoroughly succeeded. I had at one time between thirty and forty blooms on them as good as I have anywhere seen. It has been sometimes said that they will not bear the sun; but these are in the full sunlight, although it is true the pots are shaded from it. Of course, to those who have *Lapageria* houses, or who can give their plants any room they like, this may appear a very trivial success, as they can probably cut ropes of flowers with as many blooms on them as I had altogether; but none the less, I think many who have been hindered from attempting their culture will take heart of grace from this statement.

Two other trailing plants that I have grown this year are *Clematis oblata* and *Lonicera sempervirens*, but they have been cribbed, cabined, and confined to trellises from which they have every disposition to run away; but, unfortunately, I cannot give them a better place. The former is very pretty, and the latter very showy with its red and orange blooms. It truly deserves its name, for it is never out of bloom when once it starts off. It is deciduous, but all through the spring and summer it is never without flower.

In the little annexe to my greenhouse I have a couple of Grape Vines, and on the wall at the back a *Maréchal Niel* Rose planted in a large pot and trained to run on the back wall. I mentioned last year that I had adopted a plan with regard to the Vines which had been recommended by a suburban amateur, but which I had years before seen with my friend Dr. Samuel Newington at Ticehurst—viz., leaving every alternate shoot and cutting it to about 18 inches in length, and taking the crop from this instead of (as I had been in the habit of doing) from the young shoots of this year's growth, and I promised to chronicle the result. It was most satisfactory. I took quite a hundred bunches of Grapes from them of good size and quality, and I am so well pleased with it that I shall in future grow them in this way. *Maréchal Niel* did famously. It made its growth and flowered before the Vines came in its way, and I had some grand blooms from it, and I see this year that it is still more promising. I am aware, again, that in many these small matters will excite a smile; but for the same reason as I remarked about the *Lapagerias*, they may give encouragement to small men—those who are endeavouring to gratify a taste which they think that their space will not allow them to indulge in. The Grapes would not win a prize at even a local show; but they are very good, and they are always a welcome gift to invalids, and the poor especially prize them.

Although not quite coming under the head of greenhouse, I would like to record a rather successful bit of Tomato-growing which I accomplished in the small pit in which I bloom my *Auriculas*. This is span-roofed; there are two shelves, or whatever else they can be called, on which the *Auriculas* stand, the ordinary soil of the garden, with a layer of gravel or ashes on the top, and a walk down the centre. When the *Auriculas* had finished blooming and had been transferred to their summer quarters the gravel was removed, holes made, in which some good compost was placed, and the Tomatoes planted four on each side. They were as they grew trained up under the glass, and came up over the top. They looked exceedingly pretty, and were very prolific, giving us an ample supply of very excellent fruit. As we cannot in this neighbourhood grow them in the open air successfully, as they get attacked by disease, it was a great matter to have an abundant supply in this easy manner. The pear-shaped variety was very pretty, but I shall hardly try it again, but depend on *Victoria* and *Excelsior*. By-the-by, can anyone give a really good recipe for making Tomato sauce that will keep? There are several given, but if anyone can from experience say that they have found one really good I should be much obliged for it.

There are a few other things which I have found useful in my small house, which I may as well notice. The *Freesias* I have written about before; they are delightfully sweet-scented. I saw them the other day in quantities in Mr. Dickson's in Covent Garden, and they are much used for bouquets. Another very useful flower for cutting is *Doronicum austriacum*. Its bright yellow flowers are very pretty, and as it blooms profusely and bears pot culture well, although perfectly hardy, it is very useful. I have tried *Centaurea cyanus* (the blue Cornbottle) for some time, so as to have blue flowers to cut in the winter; but it is so apt to flag and look shabby that I have determined on not growing it again. The *Schizanthus*, on the other hand, repay one for any trouble taken with them, as they supply a quantity of graceful and pretty flowers during the spring months. On the whole, my greenhouse has been a great success, and has well rewarded us for any pains and trouble we have taken with it.—D., Deal.

FUNGUS IN VINERY.

I HAVE often noticed the correspondents of the Journal recommending leaves as fermenting material in vineries, and I quite agree with

them on that point; but I do not observe them advising their readers to be careful in taking all out when done with. Decayed sticks, leaves, and Beech nuts are very liable to introduce fungus when buried in the soil. In two vineries here it was a practice to bring in leaves for heating material, but for some cause or other the gardener then in charge, instead of clearing them all out again, spread them on the border and covered them with 9 inches depth of fresh loam. The result was when I examined the borders last December I found the layer of leaves a mass of fungus, and we had to open all the ventilators to let the foul air out, as it was unbearable to breathe, so that I should strongly advise persons never to dig leaves in Vine borders.—GEO. MURRAY, *The Gardens, West Ashby Manor*.



INTERNATIONAL HEALTH EXHIBITION, LONDON, 1884. — His Royal Highness the Duke of Cambridge, K.G., has consented to open this Exhibition on behalf of the President, His Royal Highness the Prince of Wales, on Thursday, the 8th of May, at noon.

— As an example of the rapidly increasing demand for Daffodils and their relatives, it may be noted that one grower has within a few days lately sent to market no less a number of the POET'S NARCISS than one hundred dozen bunches, each of which contained twelve flowers, or a total of 14,400 flowers. The variety ornatus is most in demand, and at the conclusion of the recent Crystal Palace Show comparatively small bunches were eagerly purchased at 9d. or 1s. each.

— MR. J. DOUGLAS informs us that in one of Mr. Sweet's vineries at Leyton is a remarkable example of the manner in which scions sometimes affect stocks in the case of a GROS COLMAN VINE GRAFTED ON A BLACK HAMBURGH. The scion has made good growth, but about a foot below the union a strong shoot appeared, which Mr. Douglas states is indubitably of the Gros Colman character.

— A STRIKING proof of the force of the gales in December and January last was afforded at the annual SALE OF TIMBER on the Clumber Park and Worksop Manor estates of the Duke of Newcastle. The catalogue included 2613 trees which had been uprooted in Clumber Park, and 673 trees and 159 poles blown down in Worksop Manor. Among these were between 600 and 700 Oaks, many of noble dimensions. No previous storm has ever proved so destructive in the district.

— BY some mistake a passage was inserted in Mr. Mangles' description of *Rhododendron Fortunei* at page 270 for which he is not responsible. It is stated that the flower of this species is *superior* to that of *R. Griffithianum*, whereas his opinion is exactly the reverse.

— MR. W. W. BROWN, late head gardener to Frederick Priestman, Esq., Elleron Lodge, Pickering, has become the tenant of the old-established nurseries at Whitby, Yorkshire, lately occupied by Mr. H. K. Williamson, and which will be carried on under the style or firm of "W. W. Brown & Co., Nurserymen and Seedsmen."

— THE LAMBETH AMATEUR CHRYSANTHEMUM SOCIETY will hold their tenth annual Exhibition in the Hawkstone Hall, Westminster Road, on November 11th and 12th of the present year. The schedule enumerates similar classes to those of previous years, and all exhibits except those from honorary members must be grown within a radius of a mile and a half of the Elephant and Castle.

— THE *Gardeners' Magazine* remarks that they have been "honoured with an official invitation to a meeting of the Royal Horticultural Society at the Linnean Society's rooms on Tuesday, May the 8th," but that the subject of discussion and year when the meeting is to take place are not named. This is certainly a little mysterious, as we are not aware that any such meetings have been projected by the Royal Horticultural Society this year.

— A KENTISH correspondent writes:—"As an instance of the PAST MILD WINTER we have a Camellia in bloom out of doors. I do not know the variety; the bloom is white striped with red. It is growing in a sheltered niche against the west side of the mansion.

Strawberries are in bloom, and also a large plant of *Souvenir de la Malmaison* Rose growing on the same aspect as the Camellia."

— IN many gardens the profusely flowering *MAGNOLIA CONSPICUA* is now in handsome condition, but some of the best specimens we have seen this season are at Leigham Court, Streatham. They are growing against a wall with a southerly aspect, and the branches have been crowded with snowy flowers for some time. For early spring flowering this tree is unequalled, and it might be advantageously planted much more extensively anywhere in the south of England.

— IN the same garden is an extremely pretty COOL FERNERY, which for naturalness of arrangement and the healthy appearance of the plants could not be surpassed. It is of moderate size, span-roofed, with a northern aspect, the walls being 8 or 9 feet high, and the length perhaps 50 or 60 feet. No attempt is made at elaborate rockwork design, but a few large blocks of tufa or sandstone are employed, the path rising by a few steps to the centre, where there is a small pool, crossed by a stone bridge, a waterfall at the back imparting a pleasing diversity to the scene. The walls are covered with a dense growth of *Ficus repens*, the lower stones being overgrown with *Selaginellas*, larger specimens of *Adiantums*, *Aspleniums*, *Dicksonias*, &c. Occupying suitable nooks or prominent positions *Dicksonia squarrosa* is particularly handsome, its rich green fronds being very strong; while on the back wall *Begonias* of the Rex type and *Nephrolepis* succeed most satisfactorily. All indeed are in admirable condition, and, like every other department of this establishment, afford the best evidence of the attention they receive from the experienced and energetic gardener Mr. E. Butts.

— THE value of *GARDENIA FLORIDA* is widely recognised in gardens, but we have never seen a better example of what excellent results can be obtained in a comparatively small space than that afforded by a house under the charge of Mr. Howe at Park Hill, Streatham Common. There, a division of a range of span-roof pits, about 12 feet square, with a central path, and a bed on each side, is devoted to *Gardenias*, which are planted out, and evidently succeed as well as could be wished. Flowers were cut the first week in March, and the supply will be continued through the greater part of the summer; at the present time the compact sturdy bushes are loaded with buds and flowers of inestimable value. The chief aim is to have a succession of young plants, as the old specimens are found to be less satisfactory than more youthful vigorous plants, as with liberal supplies of water and a good temperature no difficulty is experienced in obtaining abundance of well-formed exquisitely fragrant blooms.

— THE BATH AND WEST OF ENGLAND SOCIETY announce that their meeting for the present year will take place at Maidstone on June 2nd, when the following prizes will be given for horticultural productions. Two silver cups will be given for Orchids—viz., a £10 cup or money for the best group, and a £5 cup or money for the best specimen. Two cups or money will also be given for vegetables and fruit—viz., a £5 cup or money for the best collection of vegetables, and a similar prize for the best collection of fruits. This portion of the Exhibition is as usual under the superintendence of the Steward, the Hon. and Rev. J. T. Boscawen, Lamorran, Probus, Cornwall.

— WITH much regret we have to announce the death of Mr. JAMES ATKINS of Painswick on the 2nd inst. at the good old age of 82. Forty years ago Mr. Atkins was a prosperous nurseryman at Northampton, and retired to Painswick in Gloucestershire, where in private life he cultivated for pleasure the plants which he most loved. These were principally what are called herbaceous plants and alpine. His name will be perpetuated by the pretty little *Cyclamen Atkinsi*, which he raised from seed.

— MR. WILLIAM PAUL has sent us from his Waltham Cross nursery a box of blooms of the CLOTH OF GOLD ROSE. Anything more charmingly beautiful than such flowers as these, relieved by the dark green foliage that this Rose produces, it is difficult to imagine. Though lacking the rich golden colour of the *Maréchal Niel* they are not less attractive, the primrose deepening to yellow having a most pleasing effect, while the expanding blooms are faultless in form.

— MUCH surprise was expressed at Kensington last week that the Floral Committee omitted to certificate the beautiful *AMARYLLIS ADELINA PATTI* shown by Messrs. J. Veitch. This is undoubtedly one of the most distinct in colouring that has yet been obtained, and at the present time the only scope for *Amaryllis* improvers is in increasing

the variety of tints, and breaking as much as possible the uniformity of scarlet and crimson shades that are so abundant. The flower is perhaps not quite so perfectly formed as in many other Chelsea varieties, and one objection raised against it was its angular outline; but this would scarcely hold good, as a certificate was given for one equally as angular and by no means so distinct. The body colour is a peculiar but pleasing dark shade of rosy crimson, slightly broken into irregular broad stripes, the margins and tips being white, constituting a bold contrast. It will certainly make its way in popular favour, and will probably become the parent of a handsome race of novel varieties. Two of the most experienced florists on the Committee expressed a very decided opinion in its favour, but they were out-numbered.

— AS a TRIO OF EARLY RHODODENDRONS the following are undoubtedly worthy of notice, even if their names are seldom recorded in current garden literature:—Nereus, dark maroon or claret colour with white stamens; Russellianum superbum, light crimson; and Prince Camille de Rohan, blush with prominent chocolate spots. In Mr. McIntosh's unique collection of hardy Rhododendrons at Duneevan those named are the only varieties in full beauty, and the trusses are as fine, fresh, and effective as if flowering in June. They are thus hardy as well as attractive, and their condition also shows that the weather, although not genial of late, has not been excessively inclement.

— THE display of HYACINTHS IN BEDS in the same garden has been extremely fine, even perhaps richer than ever, by the freer intermixture of the deeper colours, notably reds. Some 5000 bulbs are planted about 8 inches apart in the proportion of one-third of double and two-thirds of single varieties, the effect of this assortment being more massive than if singles alone are employed. Each truss neatly secured to its galvanised wire stake, and all the beds margined with the arching foliage of Crocuses, produce an appearance at once rich, chaste, and unquestionably beautiful. All who have the honour of the acquaintance of the owner of Duneevan will rejoice to learn that his illness is less pronounced than it has been for some months past. The absence of such an earnest horticulturist creates a blank at South Kensington, and everyone will be delighted to see him in his place amongst the flowers and on the Council board once more.

— A COLONIAL paper referring to AUSTRALIAN TOBACCO states that in New South Wales Tobacco is profitably grown in the north from the Hunter to the Tweed Rivers, ten miles back from the creek; to the west in a line from Tamworth to Dubbo, taking all the country to within ten miles of the coast; and to the south from Albury to Goulburn; in fact, Tobacco can be well grown in the greater part of the colony. The yield is from 1200 lbs. to 2000 lbs. per acre, the market value being from 5d. to 1s. per lb.

— GARDENING APPOINTMENTS.—The following appointments have been made through Messrs. John Laing & Co., Forest Hill:—Mr. Ch. Catchpole, late gardener to R. W. Relfe, Esq., Meldon House, Ravensbourne Park, as gardener to Miss Fanny Hill, Acacias, Dulwich; Mr. Blackburne, lately at Snowden, Ryde, Isle of Wight, as head gardener to Jas. Scott, Esq., Elmstead Grange, Chislehurst; Mr. Messenger, as gardener to Henry Waters, Esq., Langley Lodge, Beckenham; and Mr. McIntosh as gardener to T. W. Lawrence, Esq., Oakleigh, Beckenham.

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY GARDENS IN MARCH:—"Total duration of sunshine in the month 91.8 hours, or 25 per cent. of the possible duration; we had six sunless days. Total fall of rain 1.50 inch; maximum fall in twenty-four hours, on the 3rd 0.42; rain fell on nine days. Mean temperature of the month 42.7; maximum on the 16th, 68.4; minimum on the 1st, 24.1; maximum in the sun on the 16th, 114.2; minimum on grass on the 26th, 19.1; mean temperature of the air at 9 A.M., 42.2; mean temperature of the soil 1 foot deep, 42.6; number of nights in which the temperature was below 32° in the shade, nine; on the grass, twenty. Highest reading of the barometer on the 27th, 30.258; lowest reading on the 10th, 29.135. Wind has blown from all the points. Average velocity 9.8 miles per hour; it exceeded 400 miles on four days, and one short of 100 miles on five days. The temperature recorded on the 16th is higher than in any of the previous eight Marches, and has not been recorded in April since 1876. The mean temperature is nearly 8° higher than last year; sun-

shine less than in either of the last three years; vegetation forward, fruit blossom abundant."

LIQUID MANURES.

MAY I ask you to take up the subject of liquid manures in the Journal at your convenience? Frequently a certain quantity of guano or some other product of extremely variable composition is directed to be added to a gallon of water with the result of yielding a liquid of unknown strength, and though a skilled gardener may make clever guesses and achieve success with such materials, others are simply in the dark. For two years I have used a mixture containing a quarter of an ounce of nitrate of potash (from the chemist), half an ounce of phosphate of soda, and a quarter of an ounce sulphate of ammonia (ordinary commercial from the manure dealer) to each gallon of Edinburgh town water (containing lime to 5° or 6° of hardness). When this mixture is freely used Cinerarias become vigorous with deep green leaves, and flower for weeks; and it evidently is not too strong for them and other soft plants. Thirty-two gallons is a convenient quantity to mix at one time. I find ordinary gardeners quite helpless when asked questions on matters beyond their own personal experience, and therefore hope that you will discuss the question of feeding plants with ready prepared food without trusting to food resulting from decomposition of the potting materials.—A CONSTANT READER.

THE HERBACEOUS BORDER.

AFTER an unusually mild winter it is perhaps remarkable that most hardy plants, forward as they are, are not in a more advanced stage of growth. True, some have flowered quite out of season, but these are exceptional and do not call for any particular comment.

Of the flowers that have been with us in March, and are at its close mostly over, I may mention Snowdrops, Scilla sibirica, Helleborus niger, H. maximus, and Crocuses. The last have been very beautiful, it being quite unaccountable why they are not more generally planted. Planted amongst grass that is not mown very early, so that they have time to complete the growth before the grass is cut, as is common enough in woodland walks, they are indescribably charming, their bright gold and silver and purple being matchless when seen in the green sward. I suppose we shall in time get clear of the bare-earth system of displaying these, with Snowdrops and Daffodils, and have them clean and bright as we find them naturally.

Primroses have been flowering since the new year, but they were not really good until March. The double varieties of Primula acaulis have been beautiful, and still are so, as they bloom for a lengthened period, and are far more enduring than the type, and much as I like the single varieties I consider the doubles are more effective. The double white, double crimson, double yellow, and double lilac are very bright and pure in colour, and the flowers are perfect rosettes. Double rose, purple, sulphur, and plum are not so clear in colour, being somewhat dingy, yet the double plum has large flowers, is very free. It is identical with Primula acaulis platypetala plena. One noticeable feature about them is that the birds do not pull the flowers to pieces, as they do those of the single varieties and Polyanthus.

Primula denticulata capitata with its large Auricula-like foliage, covered with golden farina on the under side and on its stems, has been very fine with its large close globular umbels of purplish violet-blue flowers with yellow centres, and is now (the close of March) over. P. viscosa nivalis is just expanding, its pure white fragrant flowers on stems just rising above the foliage being very pretty. In charming contrast to all the Primulas is the really lovely P. rosea, which is of free though miniature growth, appears to increase rapidly, and in a mass must be very effective. As it is, it is a gem; the flowers are borne eight or more on a stem a few inches high, in bud are bright crimson, and when expanded a very bright clear rose.

Arabis albida with its sheets of white flowers has been gay all the month. It is very much visited by the bees, and appears to be well worth growing, if only for their use, yet it makes a sheet of telling white flowers either on rockwork or in the border.

Aubrietia græca as a rounded tuft or clump tells well in the herbaceous border, its profusion of bluish-purple flowers rendering it very effective, and is fine for spring bedding.

Anemones of the stellata and coronaria section are unquestionably the most effective of all the flowers in the herbaceous border during March. Shades of blue, purple, lilac, white, scarlet or crimson, and an admixture of colour producing a splendid effect, and for cutting the flowers are superb. All they want is to be planted and left alone, so as to grow into masses, and the more mixed they are the finer the array. A. apennina with its bright blue flowers is charming, especially

so when associated with its white variety *A. apennina alba*, the plants when established being smothered with flowers.

The Megaseas (*Saxifragas*) are just showing their spikes of bright rose flowers from the large cordate leathery leaves, the best of these being *M. cordifolia purpurea*, rich purple flowers on stems a foot or more high, but it flowers a little later than the species, and so does *M. Stracheyi* with its spreading panicles of white flowers, contrasting finely with the purple of *M. cordifolia purpurea*.

Narcissus with me are yet confined to *Pseudo-Narcissus*, *Pseudo-Narcissus plenus*, *Telamonius plenus*, *nanus*, *cernuus*, *obvallaris*, *lobularis*, and *minimus*. *N. incomparabilis Stella* was the first in flower, closely followed by *N. incomparabilis* with its large primrose flowers and sulphur crown; the Butter-and-Eggs (*N. incomparabilis aurantius plenus*) is also in flower, and so are *N. incomparabilis plenus* and *N. incomparabilis sulphureus plenus* (Codlins-and-Cream). The double forms of *N. incomparabilis* are amongst the best of the *Narcissus* for cutting. The finest yet out is *N. bicolor Horsfieldi*.

Hepaticas have not been good. They evidently need more moisture than we have had this winter, yet the double blue has flowered and still is flowering very freely; the white has flowered well. *Hepaticas* apparently need a stiffer and moister soil than ours, which is light overlying gravel.

Spring Snowflake (*Leucojum vernum*) flowered early in March, and were very poor indeed, and were soon over. The finest display we have had so far have been and are *Hyacinths* in beds of imported bulbs; yet those in the borders left undisturbed have bloomed well, forming useful and effective clumps. *Tulips* also are just coming in. Herbaceous borders in the early part of the year are very dull; indeed, without bulbous plants are shorn of half their attractions and usefulness.

Wallflowers which have been in flower for a long time are now at their best. The dark crimson and new dwarf yellow are the most useful. The doubles from seed are weedy—a long way behind the good old double yellow and double purple. For some unaccountable reason our plants of *Cheiranthus alpinus* and *C. Marshalli* have collapsed.

Myosotis dissitiflora grows into a great clump, and is very effective; its comparatively insignificant flowers tell only or best when they lose their individuality in the mass. On account of its innumerable flowers it is a far more effective plant than *Omphalodes verna*, the flowers of which, though larger and bright blue, are not freely produced.

Corydalis bulbosa and *C. bulbosa purpurea* have elegant foliage, and are pretty in the shrubbery border along with Winter Aconite, Snowdrop, Scillas, Daffodils, Primroses, and Violets; but such flowers tell best when seen in a semi-wild state growing in profusion with *Anemones*.

In the matter of foliage there is yet nothing very striking. *Valeriana Phu aurea*, with bright golden foliage, is conspicuous, and unquestionably the best of all yellow-leaved plants for spring bedding. The marbled and very handsome foliage *Cyclamen hederifolium* is certainly effective, much more handsome than many plants grown for their foliage, and might be employed with advantage as an edging to beds of bulbs. Variegated Comfrey (*Symphytum officinale variegatum*) with one-half the leaf—the centre—beautifully green with broad yellow margins, is not surpassed for effectiveness during the spring and early summer months by any other variegated plant in existence. Then for silvery foliage, large, bold, and stately, we have *Centaurea babylonica*; and for graceful foliage and feathery highly divided aspect and majestic proportions during the spring and early summer months we have in *Ferula communis* one of the grandest of foliage plants, the three last being very beautiful in front of shrubberies where they can have liberal treatment.—G. A.

SCHIZOSTYLIS COCCINEA.

MR. WILLIAM HANNAH, gardener at Oakholme, has lately read a short paper upon the *Schizostylis coccinea* at the last meeting of the Sheffield and Hallamshire Gardeners' Mutual Improvement Association, which paper I now enclose. Mr. Hannah grows this plant better than I have ever seen it grown elsewhere. I have frequently seen as many as thirty spikes of bloom on one of his plants in a 10-inch pot.—W. K. WOODCOCK.

"The *Schizostylis* is a plant which I have long appreciated, and I think it must become an established favourite in our collection. I do not know anything more striking than well-grown examples, nor anything more simple than the method of cultivating them successfully. The *Schizostylis* is a native of Kaffraria, and belongs to the order of Iridaceæ or Iris family, and was first introduced in this country in 1864. In 1866 I purchased three small plants, which I have successfully cultivated ever since. It is of a very easy culture, on which account perhaps it is often

neglected, and the result is that the beauty of the plant is not half developed. I will now describe the method which I have adopted in cultivating it successfully. First I procure some good rich loam that has been taken off a rich old pasture, with good cow manure that has been well decomposed, some leaf mould, and well-washed sand. The plants should be rested in a cold pit or greenhouse until the end of March where there is sufficient heat to protect them from frost, but do not let them get too dry or they will probably be injured. About the first week in April is the best time to repot them. If the plants are strong and well grown turn them out of the pots, and divide it with some sharp instrument, which is much better than shaking them out. Place them in the same sized pots (probably 8 or 10-inch) again, and return them to the same atmosphere for three or four weeks. About the first or second week in May if the weather permits remove them to the open air, and plunge them in clean ashes in a sheltered situation.

"The compost should consist of two parts loam, one part cow manure, one part leaf mould, and a small quantity of clean washed sand. Let this be well mixed and remain in a heap for a few days before it is used. Clean pots are essential; I always make it a point to have all pots washed before using them. Let these pots be well drained, some good fibrous loam is best to place upon the crocks, and have the soil made firm about the roots. A potting stick is used to press the soil with, and a good watering is given to settle the soil well about the roots. After that, or when the plants have begun growing, give them a little weak liquid manure twice a week.

"In the first week in September remove them into a cold frame, and let them remain until about the first or second week in October, then remove them into a greenhouse or vinery where they are protected from frost. For the conservatories and greenhouses the *Schizostylis* is a great acquisition when arranged with the *Chrysanthemums* and *Primulas*, and they give a good effect during the dull days of autumn."

MANAGEMENT OF IVY ON WALLS.

ALTHOUGH this subject was brought before the readers of the *Journal of Horticulture* some months ago, the only apology I have to make in alluding to it again is to point out that now is the time for planting and attending to established plants growing on the walls of dwelling-houses and other buildings. I have frequently heard opinions expressed that Ivy is a bad covering for walls, and that it causes dampness; but I can say from long experience that if I had a damp wall to deal with I should not hesitate to plant Ivy as a corrective, and to walls of a perishable nature, such as soft red bricks or sandstone, or any unsightly wall, it is a decided improvement to cover them with Ivy. For some years I have had much Ivy to manage, which enables me to speak with some authority. If not kept in bounds it will soon prove destructive to the roofs of buildings. It must not be allowed to go farther than the space it is intended to cover, nor allowed to enter the roofs of any buildings, no matter what the materials may be. The way we manage our Ivy is to clip it close in annually in March. Before the young growth begins it is of great importance that it should be cut 3 or 4 inches below the roof or eaves, and the only care that is required during the remaining part of the year is to look occasionally round the tops of the walls to see that no young shoots are stealing a march on forbidden ground. After the Ivy is clipped we brush it well down with a half-worn besom to remove dust and any dead leaves. I may add that many of our cottages are of a rustic character, thatched with reeds and other materials, in which sparrows build; but here they are in a great measure defeated, as we use sparrow-proof wire netting on the ridges, gables, and eaves, and owing to the Ivy being so closely cut we seldom find a sparrow's nest in it. Neither is it a harbour for vermin, as some people imagine, when it is kept in the way described.

There are many varieties of Ivy grown, but for general purposes we do not find any better than the Irish Ivy. Newly planted Ivy for covering walls, palings, or wirework will require a little assistance in training until the allotted space is covered. Most nurserymen supply Ivy specially grown in pots, which can be removed and planted without any risk of failure at almost any time of the year. If the weather should be dry or hot at the time of planting occasional waterings will be necessary until the plants are established.—A. O. W.

GRAFTED ABUTILONS.

DURING the spring of 1883 we had a number of seedling Abutilons of the *Boule de Neige* type raised the year previous; and finding they were not all of sufficient merit to pay for the time or trouble of potting, besides taking up valuable space inside, they were, as usually is the case, doomed for the rubbish heap. Upon second thoughts we decided to graft some other variety more useful on these clean, healthy, straight stems; and accordingly set to work taking off the tops of these seedlings, leaving the stocks from a foot to 18 inches high. They were then placed in a gentle heat, sufficient to encourage the flow of sap, to insure its rising well. The bark was then separated all around the top of the scion, and three or four healthy terminal shoots of *Abutilon vexillarium* about 3 inches in length were inserted and firmly bound in with raffia, care being taken to place the top side of the graft to the inside, so that at the commencement of growth they would droop in their natural manner. After this operation they were placed in a propagatium

frame, and in a few days, by their starting into growth, it was perceived that a perfect union had been effected. They were then taken to the intermediate house and carefully shaded for a few days, after which growth became more vigorous. Being carefully repotted and allowed to remain in the same temperature they soon formed perfect heads about 2 feet in diameter, having all the autumn and winter been loaded with their pretty variegated foliage and their handsome pendulent flowers. Plants grown in this manner are invaluable for dinner-table or room decoration, their clear stems allowing an uninterrupted view

was a noticeable want of substance. This variety shows, however, a great advance in many characters. The ground is clear white, the stripes and netting evenly defined, bold, and of a rich rose colour, extremely effective in contrast with the crimson and scarlet varieties. These striped flowers are very useful, as when arranged in a general collection they impart a much-needed lightness and diversity of colouring. Much attention is being paid to these varieties now, and it is highly probable that a considerable improvement will be effected amongst them in future years.

The beautiful new variety named *Adelina Patti* which is noted in

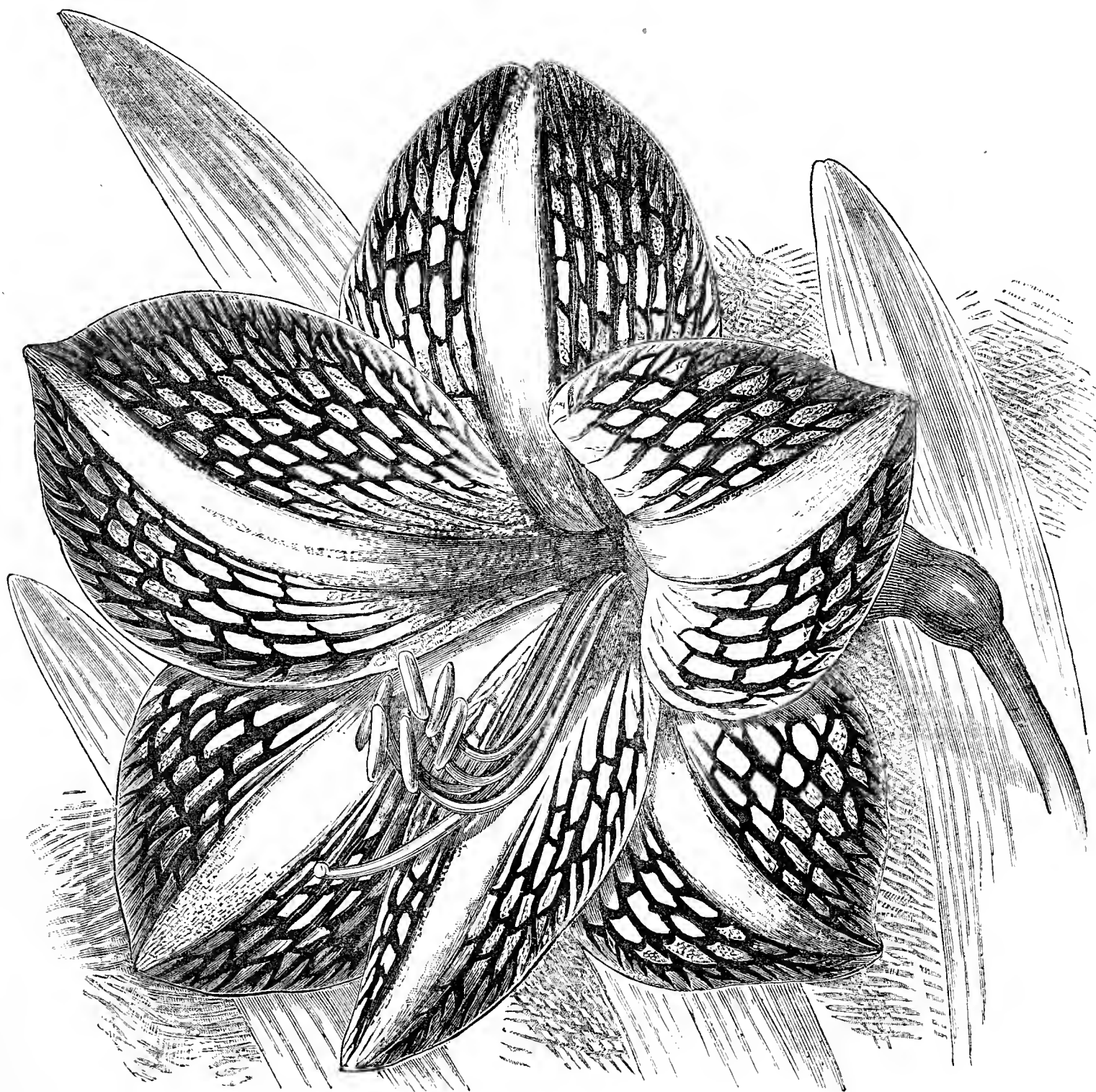


Fig. 75.—AMARYLLIS COUNTESS OF ROSEBERY.

across the table or room, being here much admired for their neat and graceful habit. I would add in conclusion that this mode of growing the *A. vexillarium* type is not so original as I at first anticipated; but to those who have not tried it I trust these few hints may be useful to procure plants that are at once handsome, useful, and cannot fail to be appreciated.—A YOUNG GARDENER.

AMARYLLIS COUNTESS OF ROSEBERY.

THE *Amaryllis* figured in this Journal last week was a good example of the improved *Leopoldi* type, which includes most of the varieties with the best formed flowers. That now presented (fig. 75), is a novelty in another distinct group—namely, the striped or *vittata* varieties, which generally have flowers rather angular in form, and in the earliest departures there

another column is of the same type as *Countess of Rosebery*. Both are from Messrs. Veitch's collection.

SEEDLING OXLIPS.

I SEND by this post a box, which I hope will arrive safely, containing specimens of my seedling Oxlips. At the top is an umbel of the old English Oxlip, then below the moss seedlings raised from the Oxlip and seed saved from Oxlip seedlings. I send a single flower from every plant except three, which are not yet in flower. Four of seedlings produce umbels and single flowers. Would you advise me to save seed from seedlings for another experiment?—A. FITCH.

[Although Col. Clarke stated at the meeting of the Scientific Committee of the Royal Horticultural Society last week that he had often tried to cross the Cowslip with the Primrose but always failed, yet the flowers before us have all the characteristics of both the Primrose and the

Oxlip. Some of the varieties are true Oxlips, others true Primroses, and others again exactly intermediate between the two, both in size, character, colour of the flowers, and the form of the calyx—in the latter respect some being closed, others inflated, while some are in a state of transition. We do not know what you will obtain by raising further seedlings, but we scarcely think you will show more striking examples of the variations of Oxlips as raised from seed.]

THE CONSERVATORY AND ITS INMATES.

(Continued from page 213.)

THE graceful, free-flowering, old-fashioned Fuchsia, a favourite still in thousands of cottage windows and greenhouses, must not be forgotten. Its merits are too conspicuous to be overlooked, and they will be still more apparent if we regard it as an autumn rather than a summer-blooming plant. Old-established specimens which have flowered early if put into a cool well-ventilated greenhouse, or even out of doors in a sheltered place, will bloom profusely a second time, but young plants grown specially for autumn blooming will best demonstrate the worth of the Fuchsia as a decorative plant late in the year.

By the beginning of September the collection of plants in the conservatory will be of a more miscellaneous character; the chief summer groups will have gone or be fading, but there are plenty of successors, and with Balsams, Begonias, Fuchsias, Lilioms, Vallotas, &c., there should be no lack of flowers. In October, however, they are likely to be less abundant; some representatives of the last named may be still lingering, but the floral wants of this time must be met chiefly by plants which have been grown expressly for that purpose. Where the ordinary greenhouse plants prove insufficient recourse may be had to herbaceous and other kinds, which are not usually grown under glass, but which from their hardiness and the late period at which they may be had in bloom can be made very useful at this season. Some annuals, as Collinsias, Clarkias, Godetias, Nemophilas, &c., sown about the middle of June in 6 or 8-inch pots, will make no despicable addition to the conservatory at a time when the supply of flowers is rapidly diminishing. Amongst hardy herbaceous plants I would recommend *Campanula pyramidalis* and *Anemone japonica*. Of the former, both the blue and the white varieties make noble plants in pots, while few flowers are more beautiful than pure white blossoms of the latter. The value of these plants will be fully appreciated where greenhouse room is much limited, as they need not occupy a place indoors until they are commencing to flower; a sheltered corner, or at most the protection of a frame, is all they will require. These, in addition to some of those previously mentioned, supplemented by *Salvias*, *Helichrysoms*, *Browallias*, and others, will bring us to the *Chrysanthemums*. These indispensable flowers will give us another period gay with bloom, but after that comes the most difficult time to provide for—viz., from a little before Christmas till the end of February.

For conservatory decoration in the dreariest part of winter, *Primula sinensis* is perhaps the most to be depended on. The seed to produce plants for blooming at that time should be sown early in February, or, better still, in the previous autumn, in which case the seedlings should be kept in the seed pan during winter, potted singly in spring, and placed in a cold frame as soon as the season will permit without seriously checking them. Place them in the pots in which they are to bloom early in August, return them to the frame, and bring them in the greenhouse about the middle of September, where in October they will commence throwing up their white or crimson flowers, and continue to do so through the greater part of the winter. Treated thus they will not be so liable to be checked by a sudden fall in the temperature as if they had been grown in the greenhouse the whole of the summer. The plants should attain a good size before they are allowed to flower, and they will bloom more freely and at a lower temperature than if they have to make their principal growth afterwards. A few old plants of the previous season, especially of the white varieties, if kept in a shady place out of doors, and not allowed to flower during summer, repotted in August and then placed in a frame till they are well rooted, will be found very serviceable just before the *Chrysanthemums* come in, or they may be retained for blooming later if they are likely to be most required then.

I have refrained from alluding to the *Pelargonium* till now, as although some representatives of the family are to be found in bloom at all times of the year, I have preferred to consider it amongst winter-blooming plants; and whether it is allowed such a position or not, the *Pelargonium* can be made a most valuable auxiliary to the conservatory at that time, which it will light up with a diversity and vividness of colouring not then found in any other species of plant. For this purpose take off cuttings in spring if small plants are required, and in the autumn previous if larger ones are wanted. As soon as they are well rooted take out their growing points and let the side shoots be stopped frequently afterwards that the plants may be kept dwarf and compact. The cuttings should be taken from hard short-jointed shoots which have flowered freely in preference to those which are soft and sappy. Endeavour to avoid a gross rapid growth, which may be partly done by potting firmly and allowing the plants to remain out of doors as long as is consistent with their safety. Do not overpot, as they will bloom more freely if slightly root-bound. Cut down old plants after their spring-flowering is over, allow them to break, repot, place them out of doors till the nights threaten to be frosty, and they will make a brilliant display after being brought inside, but they will not flower so long as the younger plants. By many the *Camellia* will probably be considered first in the order of merit as a winter bloomer. I would, however, offer a word of

warning concerning these aristocrats of the conservatory. In places where in severe weather little can be done in the way of heating beyond the exclusion of frost, they had better not be started early in the season. They are very impatient of a great or sudden change in the temperature when coming into flower, and if they are then subjected to such a check the buds will fall.

Let me here direct attention to the value of *Azalea mollis* for winter work. It forces more readily than *A. indica*; its large *Rhododendron*-like trusses are freely produced, and their soft delicate colouring is very beautiful. *Helleborus niger* is another useful plant at this season, the variety *maximus* being the best. A few pots of *Auriculas* likewise may be made serviceable, as they can be had in bloom any time after Christmas, and some of the varieties are very lovely. The white *Roman Hyacinth*, from the beauty and fragrance of its flowers and the facility with which it can be grown, is most desirable for winter, and should be employed extensively. In addition to the *Bouvardias*, *Chorozemas*, *Ericas*, *Cyclamens*, *Acacias*, *Chinese Plums*, &c., usually employed at this time, there are many other plants designated winter-blooming; but of all of them it may be said that the satisfaction hoped for from them will depend largely on the forwardness and thoroughness of their condition. Hardwooded plants especially should have their buds set sufficiently early to allow them a period of rest before being again started for blooming, and any which may have been placed out of doors should be housed before the cold rains of autumn have chilled their roots. I have passed unmentioned many well-known plants, and cultivated in numbers at most places. It was not necessary to catalogue them here, and what I have named will show the abundance which exists for maintaining a supply of bloom at all seasons, and which will enable us to accomplish this if certain well-understood conditions can be secured. I have also kept chiefly to old and well-known species, as it is on them that we must mainly depend for that supply. It will be observed that I have made no mention of the stove or of stove plants. My reason for not doing so is the fact that there are many gardens which have not the assistance of one, but where such help exists the difficulty of supplying the conservatory with flowering plants is, of course, much lessened.

I have not presumed to lay down any cultural rules differing from those so long established and generally recognised, and which time and experience have proved to be in the main correct. The science of gardening is not a thing of yesterday, and the general methods of cultivation are too well known to need detailing here. There are, of course, little facts which spring to light in the experience of everyone. A few such I have noted, but I have endeavoured to avoid the dry details of cultivation as unnecessary to my purpose, which is to impress upon my brother gardeners what to me seems the importance of keeping the conservatory well furnished with flowers, and I would urge the most strenuous exertions to make that structure attractive at all times. Even in those months when Nature is most prodigal of her floral wealth it should still be turned to as containing the choicest quality, as well as the greatest profusion of bloom; but, in the season when the hedgerows are leafless, and the ground bare and frozen, or covered with snow; when neither the greenness of a leaf nor the brightness of a flower is to be seen out of doors, then the conservatory becomes of increased interest. In many gardens the time when the resources of the conservatory for supplying cut flowers will be most severely taxed will be just after the superabundance of summer. The natural effect of the season's decline will seem to be unnoticed, and there will be no falling-off in the demand; the scissors will be actively employed, and, as is well known, indiscriminate and injudicious cutting can paralyse to a great extent the best efforts of the gardener. In endeavouring to avail ourselves of every aid to the accomplishment of the object I am advocating, that which concentration can afford us should not be despised, and the prudent cultivator will not, especially in autumn, keep the plants which are in bloom scattered through the various structures, but will, as far as practicable, gather up every one, that it may contribute to the embellishment of the conservatory. Re-arrangement also can be made to play no insignificant part. Plants should not be allowed to stand in the same places for a great length of time, and the grouping should be frequently altered. A plant in a new position acquires a new interest, and the re-arrangement of a group or bank gives something of a fresh character to the plants of which it is composed.

In conclusion, I would urge upon my brother gardeners what I deem the desirability of the object here indicated as conducing to their own interests. The prosperity of gardening as a profession does not depend on those colossal establishments which have so deservedly become famous in the annals of horticulture, but rather on the maintaining and multiplying of those small or moderate-sized gardens, the proprietors of which are found chiefly in the middle ranks of society. The gentleman who has a well-stocked conservatory to show his friends may, in doing so, be setting before them an example which some of them may determine to follow. We should remember that the love of flowers is very widespread, and that by such means as I have indicated we, as gardeners, can do much to encourage and develop that love. The spirit of emulation may be excited amongst both employers and employed, present establishments may be enlarged and new ones brought into existence.—GEORGE WINTERBURN, *Westwood Lane, Leeds*.

[The first-prize paper read at the Leeds Gardeners' Meeting.]

RHODODENDRON GLAUCUM.

DURING April and early May this *Rhododendron* is very attractive either in pots or out of doors, as in most districts in the south of England

it flowers regularly and freely every year if moderately sheltered. Though less conspicuous than many of its taller relatives, yet as a margin to large beds of Rhododendrons or other shrubs it is most valuable; and when in good condition in such situations is invariably admired.

The species is a native of the Sikkim Himalayas, where it was found by Dr. Hooker in 1850 growing, as he has stated, on "rocky depressed ridges in Sikkim and Bhotan, 10,000 to 12,000 feet above the level of the sea." Seeds were sent to Kew in 1850, and the first plants flowered there in a cool greenhouse in March, 1853. Plants were also tried out of doors, but did not flower until some time after, though specimens near the cool fernery now flower readily every season. There has thus been abundant time for it to become known in gardens, but it is yet far from being common, though its near relation, *R. ciliatum*, is a familiar plant.

R. glaucum is dwarf in habit, rarely exceeding 3 feet in height, and is usually much less; it is compact, branching freely, and the bright brown branches are well clothed with neat glaucous green lanceolate leaves 3 to 4 inches long. The corollas are bell-shaped, $1\frac{1}{2}$ inch across, shallow, with rounded lobes, and are of bright reddish-rose tint in the bud, but lighter when expanded, sometimes having quite a purplish hue. The flowers are borne in heads of five to eight at the apex of the branches, and are slightly nodding. In a synopsis of the species of Rhododendrons



Fig. 76.—*Rhododendron glaucum*.

found in Sikkim by Dr. Hooker, and published in the Horticultural Society's Transactions for 1852, this species is associated with *R. Dalhousiae*, *R. Edgeworthi*, *R. barbatum*, *R. ciliatum*, and *R. pumilum* in a group which forms the third of a series of eight under which the twenty-eight species from that district are arranged. These are distinguished by the following characters:—"Calyx of five leaves, or deeply five-lobed; corolla, funnel or bell-shaped; stamens, ten or eighteen; ovary, five or six-celled. Trees or shrubs; sometimes epiphyte, with the leaves often covered with small scales."

PRIMULAS.

THIS is without doubt one of the most interesting and at the same time highly decorative groups of spring-flowering plants, being alike valuable for the rock garden, the border, or for the embellishment of the cool greenhouse or conservatory; and being in the majority of instances of comparatively easy culture is at once a strong recommendation, favouring their more extended cultivation. It has upon more than one occasion been contended that some soil or combination of soils must be had for the successful culture of many species; but to lay down any hard-and-fast rule as to soil (which, by the way, only plays one part in connection with the cultivation of a plant) without having regard to situation, altitude, and so on, is an error of not unfrequent occurrence. Still the vast importance attaching to these seemingly minor particulars should receive due consideration in the

planting, not only of the various species of *Primula*, but of all alpine plants which are fastidious as to soil or situation. Take, for example, that lovely species *P. sikkimensis*, which under cultivation in this country is rarely seen in good condition. In its mountain home it inhabits wet boggy situations and attains a height of 2 feet and upwards. Take it without considering the conditions under which it luxuriates in its Indian home, and plant it in an exposed dry position on the rockery, and failure or perhaps death will ensue. Here, then, is a case in point where a plant, being deprived of one of the conditions in which it delights, fails; whereas if the soil was the all-important point this might be supplied it in any position we may choose to place it, but it is not so. Other conditions must harmonise with the soil to insure success. We cannot, it is true, imitate the great elevations at which many plants are found; but this seems the least important condition, inasmuch that the great majority of plants found growing at such great elevations readily submit to lower altitudes, and consequently temperatures equally variable; yet the conditions of sun, shade, or moist-loving should be duly considered, and next to these that of soil. Taken as a whole the genus *Primula* delights in and requires a deep soil, and to this may be added, at least for the strong-growing species, a fairly rich compost. I will not longer dwell on preliminaries such as these, but which, by the way, must not be overlooked, but will give a brief account of some of the most noteworthy species and also the conditions under which they best succeed.

PRIMULA CAPITATA.—A rare and handsome species from the Himalayas and one of the most distinct, having numerous heads of rich indigo-blue flowers borne on mealy stems a foot in height. A profuse bloomer, succeeding in a mixture of loam and peat. The latter should be rough and fibrous, and should be added at about one-sixth to that of loam, avoiding manure unless thoroughly decomposed. In some localities this species thrives and seeds freely in retentive soils. This, however, is the exception rather than the rule, for a partially shady position on the rock, where it will enjoy the cool side of a stone, it will invariably thrive.

P. CORTUSOIDES.—This distinct species hails from Siberia, and is at once distinguished by its soft somewhat downy leaves, which strongly resemble the *Cortusa*, and hence its specific name. Its deep rosy clusters of flowers are borne on stalks from 6 inches to a foot in height, and among the earliest of spring-flowering plants. Care should be taken in planting to fix it in a somewhat sheltered nook in the rock garden where it is safe from biting winds, for though perfectly hardy it is often disfigured by being planted in a position too exposed. It succeeds well in a mixture of equal parts of loam, leaf soil, and peat made fairly rich, and with a liberal addition of good sharp grit.

P. CORTUSOIDES AMENA.—For some time this was believed to be only a variety of the preceding, though a very distinct one; but now it is generally recognised as *P. Sieboldi*, and was originally introduced as *P. amena*, a Caucasian species, which so far as I know has not yet found its way into English gardens. Be this as it may, there is no doubt but that *P. Sieboldi* is destined to become one of the most popular plants for either greenhouse or border decoration. It seems to thrive in almost any situation, and prefers a comparatively rich soil in a moist well-drained situation. While the plant is yet dormant a top-dressing of thoroughly well-rotted manure, leaf soil, or spent hops will be found highly beneficial. This method is preferable to any other for this individual species on account of its spreading habit of growth. It makes a most magnificent bed if allowed to remain undisturbed: its light magenta flowers produced on stems a foot in height have a telling effect. The varieties of this plant are already numerous, and are equally hardy and vigorous as the type. Among the best are *grandiflora alba*, of the purest white; *lilacina*, lilac suffused with white; *intermedia*, similar in colour to the type; and *Ruby*, deep red. This of all *Primulas* is of the easiest culture, and should find a place in every garden large or small.

P. DENTICULATA.—That this well-marked and vigorous species should not receive the attention it deserves at the hands of all lovers of gardening remains a mystery. In it we have a thoroughly hardy and decorative plant of high standing, and those whose attention is so much turned to spring gardening are annually losing a golden opportunity by shutting out a plant so admirably adapted in every respect for that purpose. It may

be had in perfection ere the Tulip dare unfold a leaf and the Hyacinth is yet below the sod. From the first week of March it may be seen with its stout flower stems a foot or more high, crowned with dense umbels of lavender-lilac flowers springing from tufts of oblong lanceolate, toothed, hairy leaves. It delights in a deep rich loam and lasts for weeks in perfection. It is easily and readily propagated by division or seeds. If the latter be resorted to care must be taken not to cover the seeds too deeply; indeed the seeds should be barely covered and never allowed to become dry after sowing, since many failures are attributable to this cause. Already some excellent forms of this plant have been selected from among many hundreds of seedlings, and there is good reason to believe that before long some splendid varieties will be to the fore.

P. FARINOSA.—A slender and interesting native species, varying from 3 inches to a foot in height; stems and leaves densely set with a silvery farina; flowers lilac purple. It requires a damp—almost wet—still well-drained position either on rockwork or slightly raised beds in peaty soil. It is easily reproduced from seed. The seedlings may be dotted about so as to form small colonies, and thus produce greater effect.

P. INTEGRIFOLIA.—A pigmy Pyrenean species, with glistening, entire, ciliated leaves lying close upon the ground, and having handsome rose-coloured flowers, which are borne on short stems scarcely more than 3 inches in height, delighting in moist sandy loam and leaf soil, taking care to plant firmly.

P. MARGINATA.—This is easily distinguished from all others of this genus by the dense silvery margin of its greyish serrated leaves. It is among the gems of the rock garden. Flowers, which are bright rose-violet, form a striking contrast to its powdery leaves. Evidently one of the oldest species in cultivation, and still by no means common. A mixture of equal parts sandy loam and peat suits it admirably. Native of the Taurian Alps, and originally from Switzerland.

P. MINIMA.—A diminutive gem, scarcely 2 inches high, having large rose-coloured flowers, which almost hide from view the small glossy and deeply notched leaves. Whether grown in pots or planted on the rockwork, it must be planted firmly in rich sandy loam; a few small stones about it, staying evaporation, might be applied with advantage. Native of southern Europe.

P. MUNROI (P. INVOLUCRATA).—A distinct species from northern India, growing a foot in height and having creamy white flowers. It thrives well in good ordinary soil in partial shade.

P. OBCONICA.—An ever-flowering species of recent introduction. Its hardness at present is somewhat doubtful, and should receive protection. The flowers are large, white, shaded lilac, and borne in umbels in great profusion.

P. PALINURI.—A most distinct species from Southern Italy of decidedly arborescent habit and easy culture. The leaves and stem are unusually stout and vigorous. It is seldom seen in good condition, and requires to be planted in a deep bed of rich soil. Its flowers are bright yellow, produced in a cluster on the summit of a stout mealy stem.

P. ROSEA.—A lovely new Himalayan Primrose, quite distinct from all others, and a gem for any purpose; of vigorous habit, increasing with amazing rapidity, and quite hardy. In bud the flowers are of a rich scarlet-crimson, but when expanded a clear bright rose. It grows 6 to 9 inches high, and prefers good, rich, deep sandy loam, and without doubt one of the finest Primulas in existence.

Thus I have given a few of the most noteworthy of the species, together with their requirements. There are, however, many more worthy of mention and equally valuable; but notice of these I must at present defer.—J. H. E.

REPORT ON THE PROGRESS AND CONDITION OF THE ROYAL GARDENS, KEW, DURING THE YEAR 1882.

THOUGH somewhat late this production is always welcome, and the present issue contains even more varied and useful matters than usual, in addition to the ordinary reports of improvements in the establishment. Many desirable alterations have been effected at Kew during the past three or four years, and it is a general opinion amongst those who are familiar with the gardens that their condition has never been so satisfactory as at the present time. It is most pleasing to observe this evidence of energy and activity in our national gardens, and still further and greater advances may be confidently expected.

That the popularity of the establishment is steadily increasing is manifested by the following statistics:—

"The number of visitors, 1,244,167, to the Royal Gardens during 1882 was enormously larger than any hitherto recorded. It is 407,491, in fact nearly half as much again greater than the number, 836,676 of the preceding year.

"The number of visitors on the Whit-Monday Bank Holiday, May 29th, was 95,300, the largest number of visitors ever admitted on any single day in the year. On December 1st the Royal Gardens were visited by only twenty-seven persons. The following figures give the total numbers admitted during each bank holiday, and also the numbers of persons who on each occasion entered before 1 P.M."

Dates.	Total Number during day.	Number before 1 P.M.
April 10th	56,676	8,521
May 29th	95,300	12,589
August 7th	75,879	8,600
December 26th ..	1,460	520

Particulars of the planning and cost of the rockery are given in full, but the most important portion of the report is that giving a list of the Palms in cultivation at Kew. Referring to this the following passage may be cited:—

"The elaboration of the order *Palmae* for the 'Genera Plantarum,' published by Mr. Bentham and myself, has led me to a critical examination of the species of Palms in cultivation at Kew. This proves to be of somewhat unexpected richness; a fact which, however, need scarcely perhaps be matter of surprise, seeing that for many years past, in fact since the existence of the Gardens as a public establishment, no pains have been spared to obtain seeds of these attractive plants, for the cultivation of which Kew possesses peculiar facilities, from our numerous correspondents in all parts of the world.

"In appendix ii. I have given a classified list of Palms, 420 in number, at present cultivated in the Royal Gardens.

"The compilation of an accurate catalogue of Palms under cultivation is a matter of great difficulty; owing, partly to the impossibility of determining them till they flower, and partly to the practice that prevails in the nursery trade of attaching provisional names to seedlings of Palms which, though unrecognisable both as to genus and species when in that state, are as full-grown plants well known under older names.

"The Kew collection of Palms is the oldest of any note. It was eclipsed altogether between the years 1820 and 1845 by the famous collection of the brothers Loddiges at Hackney, which in the latter year contained upwards of 200 kinds, but which was dispersed shortly afterwards.

"Now it has but two rivals, a European and Asiatic one—namely, the magnificent collection, made chiefly by Herr Wendland, in the Botanical Garden at Herrenhausen, Hanover, and the Palmetum of the unrivalled tropical gardens at Buitenzorg in Java. The Royal Botanical Garden at Calcutta would doubtless hold rank with these were it not for the destructive cyclones which have on several occasions decimated its contents, and especially struck down its Palms.

"The Kew collection is indebted to all the above-named institutions for seeds or plants of many of the species it contains. It is, however, especially indebted to Herr Wendland, himself an *élève* of Kew, whose knowledge of the order is unrivalled not only for many species, but for valuable information as to their names, affinities, and culture.

"The following statistics give an idea of the progress made in the introduction of Palms into cultivation, premising that before the publication of the first edition of Aiton's 'Hortus Kewensis' only two were generally known in our houses—the dwarf Fan Palm, *Chamærops humilis*, of the Mediterranean, and the Date, *Phoenix dactylifera*, both cultivated in the Chelsea Garden about 1731, and probably earlier elsewhere.

"Palms enumerated in Miller's 'Gardener's Dictionary,' 1731, 7; Palms enumerated in Aiton's 'Hortus Kewensis,' Ed. 1, 1779, 10; Palms enumerated in Aiton's 'Hortus Kewensis,' Ed. 2, 1813, 24; Palms enumerated in Loudon's 'Hortus Britannicus,' 1830, 131; Palms enumerated in Loddiges' 'Nursery Catalogue,' 1845, 210; Palms enumerated in Wendland's 'Index Palmarum,' 1853, 287; Palms enumerated in Botanical Gardens of Buitenzorg, Java, 1860, 273; Palms enumerated in Herrenhausen Garden, Hanover, 1882, 445; Palms enumerated in Kew, 1882, 420."

In the list of names in the appendix it may be observed that the new system of nomenclature for which Herr Wendland is chiefly responsible is adopted throughout. This, though no doubt preferable botanically, is slightly confusing, and it is regrettable that an additional list of the ordinary titles with their new names appended could not have been furnished, as it would have greatly increased the general value of the list. For example, the *Kentias* are much dispersed, *K. Canterburyana* becomes *Hedysepe Canterburyana*, *K. Wendlandiana* is now a *Hydriastele*, *K. Fosteriana* and *K. Belmoreana* being found under the genus *Howea*. *Arecas aurea*, *rubra*, and *purpurea* are placed in *Dictyosperma* with the same specific names. *Arecas sapida* and *A. Baueri* are placed under *Rhopalostylis*. *Chamærops Fortunei*, *excelsa*, *Martiana*, &c., are transferred to *Trachycarpus*. *Pritchardia filifera* is now a *Washingtonia*, and *Rtychosperma rupicola* is a *Loxococcus*. These are only a few examples of the more common species, but it will probably be a long time before the new titles are generally adopted in gardens.

The colonial reports are as usual very full and important, and some of them may be noted in these pages in a future issue.

THE ORANGE IN AUSTRALIA.—The Orange tree was first introduced into Sydney, New South Wales, from Brazil, in 1788. Captain Hunter says, in his "Journal of Transactions at Port Jackson and Norfolk Island," that they took on board at Rio de Janeiro, among other seeds and plants,

"Orange, Lime, and Lemon trees," and further states that at Sydney "Vines, Orange, and Lemon trees are in a very thriving state." These were introduced from Sydney into Norfolk Island, when Lieutenant King observes in his Journal of 1788, at that island, "Two Orange trees, which I brought with me (from Sydney) were kept in tubs until I should find a sheltered situation to plant them in. He afterwards says they were planted in the vale; and in March, 1790, observes, "Vines, Orange, and Lemon trees are in a very thriving state." Thus we find that they appeared to be well established in Norfolk Island; and at this time they were also thriving at Sydney, as we learn from "Phillips's New South Wales in 1790," from which date we may consider the cultivation of the Orange tree as permanent in the colony. Orange cultivation is now a leading industry in New South Wales, its head-quarters being at Parramatta, near Sydney, where millions of Oranges are annually grown both for home consumption and for export. The Orange is also largely grown in other parts of the colony, being in some measure to the colonists what the Apple and Pear are to residents in the United Kingdom.

WALL PLANTS IN SPRING.

JASMINUM NUDIFLORUM has been a mass of golden flowers since the new year, and where there is a background of green, like Ivy, to back it up it is simply lovely, but glare without relief is not acceptable, even in the dull season of the year.

Cydonia japonica still holds its own as one of the brightest and freest of early spring-flowering plants against a wall, where it is well worth a place. In the open it flowers quite as well but later. Alongside our old favourite the new C. Maulei is less effective and more slender in growth, producing its salmon-rose flowers, however, abundantly on last year's wood, and comes in in March. What its fruits may turn out to be is a question of experience, but its flowers certainly do not show to advantage in contrast with a red brick wall.

Very different indeed is Magnolia Soulangeana with its large Tulip-like blossoms, pure white with a purple base, extending up the midrib or feathered up each petal outside, pure white inside. It is really very fine, and flowers very freely, even when not more than a yard high. It flowered about the middle of March, but lasts for some time. M. conspicua superba and M. speciosa are also good, but I think M. Soulangeana the best.

What a dreary aspect have Ampelopsis hederacea and A. Veitchi compared with A. sempervirens, its deep green, small, divided, Vine-like foliage keeping fresh all the winter. This will undoubtedly take a first place amongst wall plants, being very free in growth and so very neat. It does well on a north aspect, and is evergreen.

As an evidence of the mildness of the winter Tropæolum speciosum has not died quite down; some of the young growths are quite 18 inches high, and are now advancing freely from the root. Other plants have died quite down and are only just "budding" from the roots. The plants are of course on a north aspect.—G. P. P.

CYCLAMEN PERSICUM.

At Stumperlowe Hall, Sheffield, the residence of H. J. Dixon, Esq. is now to be seen a remarkable display of Cyclamens. The plants number about fifty, nearly twenty of which will average 2 feet in diameter, and a few are 2 feet 6 inches across. A dozen or more of the plants have 300 flowers each, and on one I counted nearly 500. The largest plants are six years old, and the corms are 9 inches in diameter. They are all good varieties, as only such are grown. A small batch of seedlings are raised annually, out of which a few of the best are selected. Mr. H. Watson, the gardener, who thoroughly mastered the cultivation of this plant, for which he has gained a local reputation, prefers sowing seed in March, and he grows the young plants on rapidly after the manner practised by the London market growers. The compost employed is about three parts of rich leaf soil to one part wood ashes and charred refuse, with a liberal admixture of sand. The leaf mould is prepared as follows:—Fringing the lawn, which is extensive, is a single row of very large Sycamores some fifty years old. The leaves of these trees are annually collected and used as a covering for forcing Seakale in the open garden. A small amount of stable litter is added to the leaves to assist fermentation. After the Seakale is gathered these leaves and litter are together wheeled into a corner to decay, and the drainage from a dung heap is allowed to run amongst them. When sufficiently decayed it is turned out and laid up to dry, and when sufficiently pulverised is used as before stated as the main portion of the compost for Cyclamens. The plants, as will therefore be seen, are grown in a compost remarkably rich in nitrogenous matter and potash.

In potting Mr. Watson keeps the corms well on the surface, and he is careful that the pot across the top shall not exceed the corm in diameter by more than from 1 to 2 inches, as he has invariably found that when such has been the case, the plants, though growing vigorously and making fine heads of foliage, have not been so floriferous. The largest corms, 9 inches in diameter, are growing in 10-inch pots, thus just allowing space in potting to firmly press in the compost round the base of the corm.

Water is very liberally supplied while the plants are blooming. At the time of my visit the largest plants were standing in saucers filled with water. After blooming they are removed to the north side of the house, where they are shaded by large Camellias, and water is much more sparingly supplied. During the summer, from May onwards, they are placed out of doors on the north side of the potting shed, but at no time

are they allowed to become thoroughly dry. One plant has about two-thirds of the flowers pure white, and the remaining one-third heavily tipped at the base of the petals with dark crimson.—W. K. W.



HARDY FRUIT GARDEN.

Sewage.—As the blossom expands a feeling of anxiety arises as to the setting of a full crop of fruit, as one important means to so desirable an end liberal waterings of sewage tend to promote a full strong flow of sap, and thus invigorates tree and plant, and tends materially to a prompt healthy action in root and branch if there is any tendency to dryness in the soil. This may be thought hardly possible in showery April, but the mean rainfall of the month is less than that of either May or June, and the mere surface wetting from a passing shower can hardly affect the roots of a large fruit tree. All bush fruits and Strawberries are unquestionably much benefited now by sewage poured over the entire surface between the rows with a free hand. It is, of course, taken for granted that the land is well drained, for we have repeatedly called attention at the proper season to the importance of this matter as a fundamental rule in fruit culture.

Strawberries.—New Strawberry beds are usually made in the late summer or early autumn months, but it is a moot point if then or now is the best time for doing this. New beds made in August undoubtedly afford an early supply of fine fruit next year, but that is precisely the time when space cannot be spared for the purpose, except in very large gardens. The work is therefore often put off for a month or two till the summer crops are cleared, and then there remains barely time for the young plants to become established in the soil before cold weather sets in. We prefer to secure the earliest runners and at once plant them a foot apart in nursery beds of leaf mould, in which the roots spread quickly and strongly. There they remain till March or April, and we have just finished making extensive new beds with plants so prepared, and which were transplanted with very large balls of the leaf mould bristling with white healthy roots, and with full plump crowns, and plenty of stout healthy foliage. Some of our neighbours have shown their approval of the plan by accepting some of our surplus plants for their gardens, and we strongly recommend it to all whom space and time are much restricted in the busy summer months.

Young Standards.—Standards planted in orchards laid down in grass should have the stems protected from cattle, either by bushes, or, better still, by cradles of iron or wood. Wooden cradles last sufficiently long for the purpose if the post bottoms are steeped in creosote or thoroughly charred in a fire before they are put in the ground. We have seen the bark of such trees when left unprotected so much eaten by sheep in a hard winter that the trees died.

FRUIT-FORCING.

VINES.—Early Houses.—In the earliest house the Grapes are now ripe or nearly so, and where they are expected to keep in good condition some time the temperature should be gradually lowered to 60° at night, and 70° to 75° in the daytime, admitting air freely, employing no fire heat in the daytime. In the case of Hamburgs it will be necessary to afford slight shade from bright sun after the Grapes are fully ripe, as they are liable to become reddish if they hang long. Keep up a fair amount of atmospheric moisture by damping the paths occasionally, and a little ventilation at night will prevent the deposition of moisture on the berries. The inside border must not be allowed to become dry, but should be kept moist, watering if necessary in the morning. Vines that were started in December or January will be taking their last swelling after stoning, and should have the bunches examined, and if any are likely to be crowded a few of the least promising berries must be removed, which will greatly improve the appearance of the bunches and their quality when ripe. The inside border should be given a thorough soaking with tepid water or liquid manure, so as to keep the soil in a moist condition until the Grapes are ripe and cut. The watering is best done in the morning of a fine day, as this will allow the superfluous air moisture to disappear before the house is closed, and to lessen the necessity for further watering mulch the border with a little fresh but sweetened stable manure, the ammonia from which and the liquid at the roots will keep red spider in check; but if the pest appear sponge carefully with an insecticide such as Gishurst or nicotine soap, 4 ozs. to the gallon of water. This is safer than sulphuring the pipes where the delicate-skinned varieties are grown. As soon as the Grapes change colour admit air night and day, increasing it as they become ripe, and gradually reduce the temperature as indicated above for the earliest forced Grapes. Continue a moderate degree of moisture in the house for the benefit of the foliage, not only after the Grapes change colour, but afterwards, as in the early part of the year air moisture is not so much dreaded.

Muscats.—Houses in which these and other shy-setting varieties are in flower will need a high temperature by day, or 80° to 85° from sun heat, 75° without sun, accompanied by a good circulation of air and moderate atmospheric moisture to prevent injury to the foliage. Fertilise each bunch

leaving nothing to chance, and if there be a deficiency of pollen employ Hamburgh pollen, and reduce the strain on the Vines by removing any surplus ill-shaped bunches, a temperature of 70° not being too high on mild nights, but on cold nights 5° less will be safe and even beneficial. It is advisable to admit a little air constantly whilst the Vines are in bloom.

Succession Houses.—Let all stopping, tying, and regulating the young shoots be done after the sun has been shining some time on the house, as they are then limp and less liable to snap. Thinning is best performed in the morning or evening, and in no case ought the berries to be handled. Maintain a good moisture by damping available surfaces in the morning and in the afternoon at closing time, sprinkling the paths before nightfall with weak liquid manure. Allow the laterals to extend as far as space admits, but avoid crowding either the principal or lateral growths.

Late Houses.—Make the most of solar heat for pushing on Vines of Lady Downe's and other late-keeping sorts, as all the thick-skinned varieties cannot be over-ripened if they are to be kept in good condition for months after they are cut from the Vines. Admit air early on fine mornings, the neglect of which is the most prolific source of Vine and other foliage being scorched, allowing the temperature to rise to 80°, having a good amount of moisture in the house for the benefit of the tender foliage, and close sufficiently early to cause the temperature to rise to 90° from sun heat on bright afternoons, allowing it to fall to 60° at night, which will be quite sufficient until the Grapes come into flower, when a temperature of 65° at night and 70° to 75° by day by artificial means must be secured to them to increase the size of the bunches, and provide conditions favourable to setting. Leave nothing in the setting of late Grapes to chance, but resort to artificial impregnation. A camel's-hair brush drawn over the bunches when the pollen is ripe will set matters right even with most shy setters, as it will remove the glutinous drops or substance that adheres to the stigmas, which undisturbed prevents the berries from setting, and removed enables the berries to be set quite as well as the freest setters.

Melons.—The earliest plants are ripening their fruit, and must not be damped, as that would cause the fruit to crack. A moderate moisture, however, in the atmosphere will be necessary for the foliage. If it be considered advisable to take a second crop from the same plants, and although a rather dry, somewhat high and airy atmosphere is favourable to ripening and flavour, it must not be overlooked that the healthier the plants are at the time the fruit ripens the more highly finished it will be. When the plants are in a clean healthy condition they will show and set a second crop of fruit after the first has attained to its maximum size, and these will be swelling, and must not be allowed to suffer by want of moisture at the roots of the plants, which will not injure the ripening fruit in the least, as the young swelling fruit will appropriate the nutriment and prevent the liability of the ripening fruit to crack when there is no swelling fruit to take the food. When the ripe fruit has been cut loosen the surface of the bed with a handfork, not damaging the roots, and add a little fresh soil, treading or pressing it down, and give a good watering with tepid water, and afterwards with liquid manure. Thin, stop, and regulate the growths, avoiding overcrowding as the greatest of evils, and remove bad leaves and exhausted growths. Damp the paths, &c., before night with liquid manure as a stimulant and preventive of red spider, and syringe where the fruit is swelling in the morning and early afternoon, closing in good time. Ventilate early in the day, keep the house through the day at 80° to 85° or 90°, and allow the temperature to fall to between 65° and 70° through the night by morning.

Plants in succession houses, pits, and frames will require attention almost daily in stopping, tying, and thinning the shoots. Impregnate the blossom about the middle of the day, when the pollen is dry, performing the operation at the same time in order to secure a regular set, so that the fruit may swell together and be distributed over the principal shoots as evenly as practicable, stopping each lateral one joint beyond the fruit. Earth up the roots as soon as the fruits are fairly swelling, and supply liquid manure after the roots become active in the fresh soil, maintaining a good moisture by syringing on fine afternoons and closing early. Remove all blossoms, and keep laterals closely pinched to one joint. Shade only to prevent flagging, and ventilate early to prevent scorching.

Houses that have been used for winter Cucumbers or early Vines in pots may be utilised for Melons. Wash the woodwork with soap and water, the glass with water, and the walls with quicklime. Remove every particle of soil from the beds; make up fresh ones of sweetened dung and leaves if bottom heat be furnished by that means, or if rubble is placed around and over hot-water pipes see that it is free, so as to insure perfect drainage, and secure with a layer of turves grass side downwards. Form ridges or hillocks of good turfy strong loam with an admixture of a tenth of old mortar rubbish, and if deficient of grit add a similar proportion of road scrapings. A tenth of charcoal broken rather small will be advantageous if the soil is full of vegetable matter—i.e., decaying fibre. Press the soil firm, and when warmed through plant out, making the soil firm around each. Sow for succession, and prepare plants for putting out in pits and frames after Potatoes.

Cucumbers.—In order to maintain a regular supply of fruit, stopping, thinning, and regulating the growths must be regularly attended to, not allowing it to become overcrowded, but by the removal of superfluous and exhausted growths keep up a succession of bearing wood, avoiding over-cropping, and maintain a good surface root-action by surface dressing occasionally with light loam and a fourth of well-decayed manure added. Water with tepid liquid manure when needed, which will vary with the circumstances under which the plants are grown. Those in pots or boxes will need it daily, and those in beds over hot-water pipes will need it

much more frequently than those in beds over fermenting materials, the former requiring it every other day, whilst the latter will not require watering oftener than once or twice a week. Syringe twice a day during bright weather, damping available surfaces only in dull. Admit air freely in mild weather, but do so carefully in cold weather, and keep the air charged with ammonia vapour by sprinkling the floor, in the evening. See that dung-heated beds are not allowed to become cold from inattention to the linings, and as yet continue night coverings.

PLANT HOUSES.

Allamandas.—The earliest plants are growing rapidly and require more water at their roots. If trained under the roof keep their shoots tied to the wires, but those upon trellises should not be tied closely until they are showing flowers freely. Grow these plants at this season of the year in full sunshine, or their growths will be very long before they show flower. Keep a sharp look-out for yellow thrips, which is destructive to the points of the shoots, a moist atmosphere and liberal syringing are the best preventives. If they become established fumigate or dip the shoots in tobacco water. Those plants intended for flowering late in the winter and have been at rest may be pruned, potted, and started gently.

Stephanotis floribunda.—Plants started early in the season will now be growing vigorously, and should not be kept in too close an atmosphere. They should be in a light position and fully exposed to the sun, and need a somewhat drier atmosphere than many stove plants if they are to flower profusely. The shoots as they extend, whether trained upon trellises or otherwise, should be trained close under the roof of the house in which they are growing. Thin cord is the best to train the shoots to, as it can be cut and the plant taken down more quickly than if trained to wires. Shorter growths are produced, but the plants flower best when grown in an intermediate temperature.

Gardenias.—Blossoms are now unfolding in abundance if they have been forwarded in brisk heat. If the supply is too numerous move those in the most backward condition to a lower temperature, which will prolong their season. Plants that have been brought forward gradually since their buds were set will be found invaluable when the early batches are past. Those that have flowered may be pruned hard back and started in brisk heat unless young stock was propagated in autumn. When blossoms are required early do not prune them, except to remove straggling shoots, but grow and ripen them in a cool house early and then start them in brisk heat. Attend to stopping the shoots of young plants in 5 and 6-inch pots, and repot those rooted some time ago. These if attended to and liberally treated will make grand plants for flowering about this time next year.

Grevillea robusta.—The seed sown as advised has germinated, and the seedlings are ready for placing in 2-inch pots. If the plants are wanted quickly push them forward in brisk heat; if not, allow them to become established after pruning, and then grow them for a time in an intermediate temperature, and finally under cool treatment. A strong plant or two should be grown from year to year for supplying foliage for cutting, which is equally as beautiful as Fern fronds and lasts much longer. Another batch of seed should be sown, which, if not soaked previous to sowing, will take fully three weeks before it germinates. The seed should be well covered with soil of a light nature. Employ for a compost good loam, with a seventh of manure and sand.

Cinerarias.—The earliest seedlings will be ready for pricking-out from the seed pan into others about 1 inch apart. Gradually remove them from the heat in which they have been raised to cooler quarters, for if drawn up weakly in heat they seldom make specimens of the most satisfactory condition. Sow a little more seed in an intermediate temperature; the dwarf and compact strains are more useful for decoration than taller forms.

Primulas.—Prick out the plants singly as soon as they are large enough in shallow pans about the same distance apart as Cinerarias, and from these pans they will be large enough for small pots. Fill the pans with a compost of half loam broken fine, leaf mould, and a little sand. Keep them on a shelf close to the glass in a temperature of 60°, and shade from strong sun. Another pinch of seed may be sown. Keep plants of good varieties intended to seed upon a shelf where the atmosphere is moderately dry and the temperature 50°. If the flowers are fertilised on a fine bright day with the aid of a small camel's-hair brush the plants will seed freely, which is not generally the case if left to chance.

Balsams.—These are useful for conservatory decoration, and can either be grown into large specimens quickly or flowered in a small state, whichever is most convenient to the cultivator. The seedlings should be potted as soon as they are large enough into 3-inch pots as deeply in the soil as possible; in fact, the two seed leaves only should be above the surface. After potting water and place them upon a shelf close to the glass in a temperature of 60°. As soon as they are established they must have air daily, or they will draw up weakly. Some strains need pinching to make them branch freely, while others branch naturally. Repot directly they require it if large plants are desired, for they should never suffer from insufficient root room until they are in the pots they are intended to flower in. Some useful decorative plants can be grown in 6-inch pots, but they must be liberally fed when their pots are full of roots. They succeed best if plunged in a hotbed where the top heat is not too high. A little seed for succession may be sown every month. Use for a compost good loam, leaf mould, manure, and sand.

Coleuses.—These are useful for the conservatory and decoration during the summer. They should now be propagated and grown for the purpose. If large plants are required pinch their points out as soon as

rooted and pot them in any light rich compost. The only attention they need is heat, water, and attention to stopping and tying out the shoots to form the base of the specimen. They must be grown fully exposed to the sun, or they will be deficient in colour. No plants look better or are more conspicuous than these when grown strongly in small pots. We grow quantities without being stopped, while others are only stopped once and allowed to form about four shoots, which are more effective amongst flowering plants than those of a larger size.

Fuchsias.—Pot these as they require it, whether large or young plants. Attention should be paid to pinching the shoots and removing the flowers as they appear until the plants are well furnished, when they may be allowed to flower. Young plants just placed in 6-inch pots should be kept as close to the glass as possible. Keep them in a night temperature of 55° to 60°, and give air freely during the day to ensure a sturdy growth without being stopped. If properly treated they should when from 14 to 18 inches high be perfect little pyramids. If bushes are wanted they must be stopped until they are large enough and allowed to flower. Syringe liberally, and water freely when in active growth.

THE FLOWER GARDEN AND PLEASURE GROUND.

Lawns.—The mowing machine has already been set to work on many lawns. If the grass is kept rather closely cut now the cutting will be more lightly and more neatly performed throughout the remainder of the season. The edges will also require attention, and should be heavily beaten down or rolled before being cut with the edging iron, otherwise the walk will be gradually widened, but not improved at the expense of the turf. Never attempt to cut the turf edges without a line properly pegged into position, as by no other means can the work be done neatly. For the rest of the season the weekly use of edging shears is necessary for keeping edges neat. Large weeds on the lawns, such as Dandelions, Thistles, and Plantain, spoil its appearance, and cutting out only serves to further spread them. They must either be drawn out with tap root entire or be destroyed with oil of vitriol. This acid should be kept in a strong bottle, and applied with a stick pointed and notched. One drop on the heart of each weed is generally sufficient to burn them up. Daisies may be cut out with an old knife, and moss kept down by frequent stirrings with an iron rake as well as a dressing of road grit and wood ashes.

Walks.—Where there are but few weeds upon the walks they are best handweeded, but where they are very green they may be destroyed with coarse common salt applied during dry hot weather, enough being given to whiten the surface. Boiling water freely applied through a rose watering pot on a sunny day will do much towards clearing walks and pavements of weeds, and the remedy will be more effective and lasting by adding powdered arsenic at the rate of 1 lb. to twelve gallons of water. As the arsenic is a strong poison it should not be used where fowls or game have access to the walks, or they may be poisoned with the grit they pick up. Soda boiled in water at the rate of 3 lbs. to six gallons of water is also very destructive to weeds. Crude carbolic acid at the rate of 1 oz. per gallon of cold water and carefully distributed over the walks is perhaps the simplest and best remedy of all for both weeds and mosses. Whatever is used, care must be taken to ward it off with sloping boards from both the tops and roots of the Box edgings as well as the turf. Newly gravelled paths should be rolled occasionally; some gravels binding best when wet, while others are picked up if rolled during showery weather. The latter are unsuitable for walks, and should be faced with either ground or crushed spar, or good binding gravel procured from another district. For the back paths clinkers roughly broken, covered with some of the roughest ashes and faced with that sifted, if well watered and rolled, binds well, and the path will be clean and good for three or more years, according to the traffic. All walks should be well rounded and provision made to carry the water away without its disturbing the gravel.

Sowing Annuals.—In warm gardens where the soil is light and good, and where also slugs are not very troublesome, many kinds of annuals may now be sown. These may include Mignonette, Candytufts, pot Marigolds, Eschscholtzias, Collinsias, Coreopsis, Cornflowers, Clarkias, Godetias, Convolvulus major and minor, Lupins, Larkspurs, Linums, Nemophila, ornamental Grasses, Silenes, Saponaria, Virginian Stocks, Love-lies-Bleeding, Scabious, Nasturtiums [Tropæolums], Poppies, Hibiscus, Gaillardias, Asters, of which the best are the Victoria and Truffaut's Pæony-flowered; Stocks, the most serviceable of which are the Earliest-flowering Autumn; Helichrysums, Zinnias, Dianthus, and Phlox Drummondii. Sow thinly in patches and according to their respective heights, cover with a little sifted sandy soil, and mark each patch with a peg. On colder soils the choicer sorts, especially the last six mentioned, should either be sown in boxes or frames and be transplanted. In our case, owing to the abundance of slugs, the majority have to be sown under glass, the exceptions being Eschscholtzias, Poppies, Love-lies-Bleeding, and Nemophila, these transplanting badly, and extra trouble has to be taken with them where they are sown in the open.

Gladioli.—The principal portion of these ought now to be planted, one or two more plantings being made in order to afford a succession of bloom. A rather light sandy soil best suits them, but the commoner *Brenchleyensis* type will grow in almost any kind of soil. The ground should be dug deeply, some good rotten manure being worked into the bottom of the spit. Surround the corms or bulbs with sand and cover with about 2 inches of good soil. For affording serviceable spikes of bloom the old lilac *G. Colvillei* and the choicer *G. Colvillei alba* are recommended, and room may well be found for them in every herbaceous or mixed border.

Violets.—The hardy varieties of the Czar type require to be frequently replanted, or otherwise they become a mass of leaves, in which state but few good flowering crowns are formed. On strong soils they ought not to remain undisturbed for more than two seasons; but on light soils where a difficulty is experienced in getting them to do well, they should only be thinned out and mulched with partially decayed manure. Before making a fresh plantation on light soils add a good dressing of clayey loam, as they invariably succeed best on firm rather heavy land, such as suits Strawberries, and may well be grown in similar positions. Dig deeply, divide the old plants into small pieces with a few roots attached, and dibble them in firmly about 15 inches apart each way. On light soils a mulching of manure to be given at once, and the retention of the moisture will serve to ward off the attacks of red spider, which sometimes greatly damage the foliage of Violets. A sprinkling of salt will benefit the older beds, and the clumps where at all crowded should be freely reduced. Among the doubles Marie Louise is the most popular, but is not perfectly hardy. The runners make the best plants, and if these can be taken off with roots attached they may be planted 1 foot apart in good soil, and in the autumn be transplanted to frames or where they can be protected with handlights or frames. The runners not rooted may be dibbled round the sides of pots, kept in a close frame till rooted, and eventually planted out. The old plants will also divide equally as well as the single sorts.

THE BEE-KEEPER.

EXPERIENCE IN BEE-KEEPING.

WOULD it be worth while giving your readers my short experience in bee-keeping? perhaps it would. My original outlay was as follows :—

						£	s.	d.
November, 1882.	A stock in straw skep	..	..	..	..	0	12	6
" " B "	" " "	..	..	..	..	0	10	0
" " C "	" " "	..	..	..	..	1	0	0
One bar hive and sectional super	" "	..	..	..	..	0	12	6
One bar hive (made myself)	..	..	..	..	..	0	5	0
Common straw skeps ..	..	..	..	..	..	0	5	0
Glass supers I had in stock	..	..	..	..	..	0	0	0
Total original outlay	..	..	..	..	..	£3	5	0

And now to give summary of results:—

								£	s.	d.
A gave 4 lbs. of super honey and no swarm .. .. .	..	..	..	..	..	..	..	0	5	0
B died early in December, owing to paucity of bees .. .. .	..	..	..	..	..	..	..	0	0	0
C gave two swarms, D and E .. .. .	..	..	..	..	..	..	..	0	0	0
D gave 10 lbs. of finest super honey .. .. .	..	..	..	..	..	..	..	0	12	6
E gave 7 lbs. of inferior honey from body box .. .. .	..	..	..	..	..	..	..	0	7	0
								<hr/>		
Results .. .. .	..	..	..	..	..	..	..	£1	4	6
Expenditure .. .. .	..	..	..	..	..	..	..	£3	5	0
Returns .. .. .	..	..	..	..	..	..	..	1	4	6
								<hr/>		
								£2	0	6

Remainder of original outlay to be wiped off £2 0s. 6d., and against it must be set A, C, and D. E was united. A is very strong; on Sunday last I counted over 100 bees a minute coming in. C is very strong; on same date I counted over 70 bees a minute coming in. D over 120 per minute coming in. They may surely be valued at £1 each, against which must be set 5s. for feeding the three—£2 15s. In reality they are "here" worth more. My state now is then:—

Remainder of original outlay..	..	..	..	..	..	£2	0	6
Value of stocks ..	..	..	..	..	..	..	2	15
								0
								0
								6

I have also an empty bar hive and three combs on hiving skeps which I will not value at anything, but set them against the fact that I had not to buy glass supers. I began to feed on the 23rd February in the case of A and D, and later in the case of C (about the 15th March). With my first year and my prospects for the coming year I am well satisfied. If anyone by reading this summary of receipts and expenditure is induced to become one of the ever-increasing few bee-keepers the trouble in preparing it will have been but a pleasure, and the thought of the many happy hours a novice will enjoy in watching these most interesting of insects will be a spur to many to give their varied experience. For myself I am prepared for "bad years," "failures," and "losses," and so must all be; but I rest assured that the reverse will so often be the case that they will soon be forgotten amid years of plenty.—T. M.

CYPRIAN AND SYRIAN BEES.

THE Ligurians have been rather severely criticised lately, and I have waited to see the Cyprians and Syrians placed in the same black list, or blamed for many of the bad qualities imputed to the Ligurians; but "Hallamshire" having written in their praise, or rather in the praise of Syrians, I write to warn those who are disgusted with Ligurians from taking up Cyprians and Syrians in their stead, as they possess all their faults with none of their virtues. Our cousins across the Atlantic seem

to think very highly of them, and are trying by selection and cross-breeding to get a gigantic gold-coloured bee, for which they have already found a name, *Apis americana* I think it is. Meanwhile they are using their fertile minds, with pretty good success, to make wax, comb, and honey without the help of bees in any way.

An enterprising friend of mine took the trouble to import a large number of these Cyprians and Syrians, and there were about thirty stocks distributed within an area of a few miles of where I write; in fact, I know who owned most of them, and we are now all agreed that they are quite unsuitable for this climate. To handle them with smoke is impossible. They can only be manipulated slowly and carefully, and we feel all the while at their mercy. I have had a few lively times with bees in my 'prenticeship, but five minutes I once spent with a stock of Cyprians is still fresh in my memory. They not only used their stings, but bit as well. They brought with them some of the finest specimens of wax-moth grubs I ever saw, besides other vermin. They are incessant workers, early and late; a Scotch mist will not keep them at home. They breed rapidly, wear out their queen, dispatch her, and rear others with little consideration, and when blacks are storing they are consuming all their income on brood.

In the summer of 1882 I supered a very strong stock at the same time as I did six stocks of natives. There was a glut of Clover and Bean honey, and a bee-keeper friend calling to see me I showed him my supers being rapidly filled by the blacks, but when we came to the other I well remember the comical expression of his face as he remarked, "You did not expect them to fill it? None of mine have. I guarantee you will not find a pound of sealed store in the stock hive!" And this we found was the case, although it was crammed from end to end with brood. Later on they stored, but at whose expense? Having no Heather in this neighbourhood we do not get honey gluts in October. The result was that winter came and they were unprepared, and the following spring the majority of these thirty stocks were destroyed with dysentery, and the neighbourhood has been tainted with foul brood ever since. My friend the importer kept clear of the scourge, and, fortunately, so I have myself, but I know the amount of vigilance it cost him, and we have cleared out the foreigners from our apiaries.

Let us improve anything we can by all means, but let us admit the uselessness of puffing anything that is but a mere fad. Foreign bees are so mixed now, the Cyprians and Syrians having been introduced into the Italian breeding apiaries to improve the colour of the Ligurians, and even English black queens have been introduced to maintain their physique, and all to satisfy this insatiable craze for novelty so dear to the heart of Englishmen.

In justice to the British Bee-keepers' Association I must say they are doing their best to improve the use of the straw skep in the hands of the inexperienced cottager, and rightly, too, in my opinion; for after all the great aim of bee-keeping is to fill the honey pot, and not to give us gold-coloured bees as large as hornets to ornament our gardens as they pass from flower to flower.—J. P. S.

TRADE CATALOGUES RECEIVED.

James Cocker & Sons, Aberdeen.—*Catalogue of Florists' Flowers for 1884.*
Thomas Painter, Smallwood, Stoke-on-Trent.—*Catalogue of Dahlias.*
Bruant, Boulevard Saint Cyprien, Poitiers, Vienne, France.—*Catalogue of Plants for 1884.*
Louis de Smet, Ledeborg-lez-Gand, Belgium.—*Catalogue of Plants for 1884.*
William Bull, King's Road, Chelsea.—*List of New and Beautiful Plants.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (A. H. P.).—Brown's "Forester" (Blackwood) is the only full and practical work that we can recommend as likely to meet your requirements. London's "Encyclopædia of Trees and Shrubs" (Longmans) you would also probably find useful as a work of reference. Other works, so far as we know, are merely compilations from the above, nor are we aware that any original work is in preparation on forestry and arboriculture. The publisher can

supply you with vols. ii. iii. and v. of the new series, but not vol. iv. We do not know of any other way of obtaining this than by advertising.

Errata.—At page 291, under the paragraph "*Rhododendron Veitchianum*," "nearly two blooms" should read "nearly two hundred blooms," and for "roots" small "shoots."

Destroying Weeds on Walks (Eight-years Subscriber).—Perhaps you allude to destroying them with carbolic acid, of which you will find particulars in our "Work for the Week" of the present issue. The water is first placed in a garden can with a fine rose, the acid measured and poured into it. No stirring or further mixing is requisite, but it is immediately poured over the weeds through the rose, care being taken to make the entire surface of the path wet in order to destroy the weeds. Care must be taken not to let the acid touch the hands, clothes, or boots. You had better not use the acid for destroying weeds on land that has to be afterwards cropped, as sufficient to kill the weeds would also prevent the growth of the crops you might desire to cultivate.

Muscat Troveron Grape (A Sussex Grower).—If you have been led to expect that this Grape would even approach in appearance the Muscat of Alexandria we are not surprised at your disappointment. It is totally distinct from the oval-shaped Muscat Grapes, and is not classed amongst them. It is a Frontignan Grape, its proper name being *Troveron Frontignan*. The berries are round, of good size for a Frontignan, but small as compared with the true Muscats. The colour is amber, but often tinged with a reddish brown colour, which gives the fruit a rusty appearance. The flesh is firm and crackling, and the flavour excellent, with a strong Muscat aroma. Those who covet a number of varieties of Grapes, or who desire Grapes of high quality regardless of appearance, may grow the variety in question as one of the best of the Frontignans, but it cannot be compared with the Muscat of Alexandria for producing handsome bunches and berries of first-class quality. The *Troveron Frontignan* is a good grower, and in all probability a Muscat inarched on it would succeed. We should try it in preference to uprooting young and healthy Vines.

Climbing Plants for Vinery Wall (Reader).—One of the best plants for this purpose is *Heliotrope*, which yields a supply of fragrant flowers throughout the greater portion of the year, and is therefore extremely useful. *Hoya carnosa* also grows very well in such a situation, and some Roses, especially *Maréchal Niel* and *Gloire de Dijon*, succeed and flower readily. *Bougainvillea glabra* may be grown if more are required, but will require great care in keeping the plant free from mealy bug. Camellias are excellent for covering shaded walls.

Propagating *Daphne indica* (Idem).—We presume that the *Daphnes* you have are *D. indica* or its varieties, all of which may be propagated by cuttings of the young wood inserted now in sandy soil in a warm frame. They are also grafted in stocks of *D. Laureola* raised from seed, shoots of the former 2 to 3 inches long being selected and splice-grafted to the stocks, which need not be headed down until after the union is completed. They should be placed in a propagating pit or heated frame, and carefully watered.

Maréchal Niel Rose Cankered (G. F. M.).—We are glad that our reply has enabled you to discover the cause of the plant's debility. As the canker is so low you may possibly restore the lost vigour of the tree. Clear away all the old soil, and well wash the cankered part, dusting it with sand and crushed charcoal, then pack round it and for 6 inches above the injured part some turfy loam mixed with decomposed manure and charred refuse, and if this is kept regularly moist, without being saturated so as to render the compost sour, young roots will probably issue from the healthy portion, and give to the Rose a new lease of life. We have seen this method of renovating *Maréchal Niel* practised with great success. The grubs you have sent are the larvae of the Daddy-longlegs (*Tipula oleracea*). They are very destructive, and most difficult to eradicate. Starlings are their natural enemies, and a mixture of soapsuds and petroleum or a solution of hellebore are the most likely applications to destroy them.

Beetle Injurious to Peach (Anxious Inquirer).—The insect forwarded is the clay-coloured weevil (*Otiorhynchus picipes*), apt to be troublesome in the spring to a variety of fruit trees, especially those against or near walls. Whether the mature beetle always hibernates is uncertain, but it is probable that the habit of the species is to hide under the earth through the winter months or in cracks and crannies about walls, hence the importance of keeping these clean and well pointed. Where it is suspected these weevils have made a lodgment it would probably be beneficial to apply to the walls a mixture of sulphur and soft soap, 1 lb. of the one and 2 ozs. of the other to each gallon of water might be suitable, the compound being thickened with clay so as to form a paste. After the weevils have come forth (if previously undetected) they may be hand-picked, as you suggest, or shaken from the shoots into cloths placed beneath.

Vines Failing (W. M. M.).—The specimens you have sent have been subjected to microscopical examination. They are not affected by either insects or fungus, but the epidermis is withered and the sap vessels ruptured. The growth is destitute of vigour, but whether the fault is in the horder or not we have no means of knowing. We feel pretty certain, however, that the house has been kept too close and moist, and especially that the ventilation has not been attended to sufficiently early in the morning, and then when the lights have been opened they have been opened too widely. The result of this is excessive evaporation from the foliage, which causes a chill, the effect of which is usually known as "scorching." The fault is not in the Vines that were purchased, for better are not obtainable than from the source you name, but in the treatment to which they have been subjected. Is the border sufficiently moist, not on the surface merely, but quite through the mass of soil? A dry border, moist atmosphere, and low temperature at night, with late and excessive ventilation in the morning, would have just the effect exhibited by the laterals before us. There is no cure for the parts already decayed, but by according the treatment suggested the Vines ought to be in a much better condition another year.

Insects in Manure (E. A.).—They may be destroyed in the manure and anywhere else where there are no plants by applications of boiling water. This, of course, must not be applied to the Mushroom bed. Perhaps the best method of destroying the insects there would be to mix about 2 czs. of salt

in a gallon of water, and apply this to the beds. It may possibly destroy the insects and induce the growth of Mushrooms. It must not be given to plants in pots, nor to seedlings in boxes. We doubt very much if the insects are the cause of the seedlings disappearing. The evil is more likely to be the result of some defect in ventilation or watering, or both.

Amaryllis aulica (*Miss Milward*).—The above is the name of the species of which you have sent a flower, and we are glad to hear of your success in cultivating it. It is very free and useful, and has contributed markedly in imparting vigour to the much grander varieties that are now being established.

Hellebore Powder and Caterpillars (*H. M. S.*).—The trees are syringed, one person carefully holding up the branches, so that all the parts are made wet, then the powder is applied through a dredger like a pepper-box, but with larger apertures through which it can pass freely; it then adheres to the leaves and caterpillars, and does not leave many of the latter alive. The hellebore can be mixed with water and applied in the form of "tea" with the syringe. Its use is not recommended when the fruit is advancing to a size ready for gathering. Waldsteinias can be obtained from nurserymen who advertise hardy flowers in our columns. It is contrary to our rule to recommend dealers, on the ground that it would be most unfair to do so.

Cutting down Dracæna Draco (*G. S.*).—The wood is probably too hard towards the lower portion of the stem for it to produce roots, but if you partially cut it nearer the top, say a foot or two below the leaves, you will no doubt be more successful. The moss placed round the stem must be kept constantly moist for several weeks, but in the event of that failing your only course is to cut the upper part off as suggested, though the experiment will be a hazardous one. The position you name would be a suitable one, and if there was any chance of success it would be attained by placing the stem in the bed of cocoa-nut fibre refuse.

Fungus in Vinery (*S. E.*).—We are very glad to hear that our advice has proved so useful to you. The Vines, judging by the samples before us, have certainly improved wonderfully. So long as they make free progress we should refrain from closing the house in the afternoon with much moisture, but we should be content with damping it occasionally and maintaining a genial and buoyant atmosphere. The Vines will probably recover without the ammoniacal liquor; at least we think you may venture to try them.

Hardy Carnations and Picotees (*S. H.*).—The following varieties will probably suit your purpose. Carnations and Picotees are naturally later in blooming in the north than the south irrespective of varieties. We name one variety in each class. *Carnations*: Admiral Curzon, scarlet bizarre; Rifleman, crimson bizarre; Falconbridge, pink and purple bizarre; James Douglas, purple flake; Clipper, scarlet flake; John Keet, rose flake. *Picotees*: J. B. Bryant, heavy red edge; Mrs. Bower, light red; Mrs. A. Chancellor, heavy purple; Her Majesty, light purple; Mrs. Payne, heavy rose; Mrs. Allcroft, light rose.

Names of Plants (*H. K.*).—A variety of *Odontoglossum Wilckeanum*. (*Constant Reader*).—1, *Aucuba japonica* (male plant); 2, *Lonkera tatarica*; 3, *Primula cortusoides*. (*W. S.*).—The blue flower is *Charlieis heterophylla*, the other is *Eupatorium riparium*. (*S. S.*).—1, *Chorozema ilicifolia*; 2, *Monochaetum sericeum*; 3, *Alonsoa incisa*; 4, *Diosma ericoides*; 5, *Forstythia viridissima*; 6, *Agathæa cœlestis*. (*W. M., Brockley*).—*Caltha palustris*. (*J. H.*).—The red flower is *Echeveria retusa*, the white one *Eupatorium riparium*, and the other is *Russelia juncea*. (*Somerset*).—Ferns.—1, Resembles a variety of *Nephrodium molle*; 2, *Pteris longifolia*.

COVENT GARDEN MARKET.—APRIL 16TH

ALL branches of the trade dull, with good supplies, Strawberries especially meeting with little demand. Prices without alteration.

FRUIT.

			s. d.	s. d.				s. d.	s. d.
Apples	½ sieve	1 6	to	5 0	Oranges	100	6 0	to	10 0
Chestnuts	bushel	10 0		0 0	Pears, kitchen	dozen	1 0		1 6
Figs	dozen	0 0		0 0	„ dessert	dozen	1 0		5 0
Filberts .. ..	.. lb.	0 0		0 0	Pine Apples English ..	.. lb.	2 0		3 0
Cobs	per lb.	1 3		1 6	Plums and Damsons ..		0 0		0 0
Grapes .. ..	.. lb.	5 0		10 0	Strawberries .. ..	.. lb.	4 0		8 0
Lemon .. ..	.. case	15 0		21 0	St. Michael Pines ..	.. each	2 0		8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	1 0 to 1 6
Beans, Kidney	100	1 0 1 6	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 0
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	1 6 2 6	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6 2 0	„ Kidney	cwt.	4 0 5 0
Carrots	bunch	0 3 0 4	„ New	lb.	0 4 0 6
Cauliflowers	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy	bundle	1 0 0 6
Coleworts	doz. bunches	2 0 4 0	Scorzoneria	bundle	1 6 0 6
Cucumbers	each	0 6 0 9	Seakale	basket	1 0 1 6
Endive	dozen	1 0 2 0	Shallots	lb.	0 3 0 0
Herbs	bunch	0 2 0 0	Spinach	bushel	2 6 3 6
Leeks	bunch	0 3 0 4	Tomatoes	lb.	2 0 2 6
Lettuce	dozen	1 0 1 6	Turnips	bunch	0 3 0 0

departure whereby the dairymen may increase their produce, improve and regulate the supply, with advantage to themselves and the satisfaction of the consumers. Some facts in connection with the popular mode of treatment of their cows by the dairy farmers are so generally adopted by pursuing an old system as to amount to a prejudice, although it is equally injurious to themselves and the consumers of fresh butter; for any system which prevents the farmer from obtaining full commercial profits, and at the same time diminishes the supply of his products to the consumers, must be discredited by every sensible and practical farmer. Notwithstanding these facts, they are entirely unheeded by the majority of the dairy farmers; and the consumers, particularly in the winter months, are thrown back upon a supply from abroad which is commonly called "Bosh," and for some time was sold as salt butter. Although we have "adulteration Acts," which were ostensibly enacted for the purpose of securing the consumers against imposition, it has been found that the Acts are so worded as not to protect the consumers so long as it is not sold as butter, and could be by analysis shown not to be injurious to health.

It is notorious that large factories in America exist for the manufacture of oleo-margarine, which is now an article of commerce sold to almost every nation that furnishes the imports which supply the consumers of this country; and it is also stated that in some dairy districts where the cows are let for the season to dairymen who manufacture fresh butter for sale, that since the introduction of oleo-margarine, where there is no restriction to the contrary, the article is used, and the cows are let at £2 sterling more money per head per annum than at any previous time before this article came into use. This fact points to the idea that dairymen who rent their cows make use of this material for the purpose of adding to their produce of butter, even during the summer, and thus the quality of the article, although increased in supply, is greatly deteriorated. In most cases, however, it does not answer a good purpose, and if it has not succeeded in the past how is it possible that it can prove beneficial in the future to the consumers or those engaged in producing butter for sale either abroad or in this country? Much has been revealed lately upon this subject; but the following, which appeared in the *Standard* newspaper of March 24th last is very remarkable:—

"A Committee of the New York Senate has reported the results of an inquiry into the adulteration of dairy products. The details are disgusting and alarming. Of thirty samples of butter two-thirds were only remotely traceable to milk. The refuse fat of pigs and bullocks was the chief and most savoury ingredient; but often spoiled greases were used which had been deodorised by nitric and sulphuric acids of a strength sufficient to induce lingering diseases. The material was also found to contain ingredients which are fatal to infants. The doctors, upon oath, declared that the consumption of this compound had a distinct bearing upon the death rate. The Committee advises the total prohibition of the manufacture of oleo-margarine. The interest in this subject is not merely local, as the exports in February included nearly a million pounds of butter, and over three millions of cheese."

We forbear dwelling on the effects likely to arise from a statement which speaks for itself, and proceed to consider the best mode of improving and regulating the supply of home-made fresh butter. Fresh butter may be improved in various ways; but more especially by careful feeding with suitable materials at the best time and with judicious allowances, but also with pure fresh water available at all times, whether the cows are housed or feeding in the pastures. This refers to the feeding in summer time; but it should be remembered that in the case of a short supply of grass in the pastures supplementary food should be given twice a day, both of green fodder crops and crushed Oats or Wheat (of each 3 or 4 lbs.), given at each milking time in these moderate quantities. In feeding during the winter months it is necessary to consider the opportunities available for obtaining food of our choice. For instance, we are satisfied that as to the experiments relating to ensilage, especially that obtained from the best field Grasses and Clovers; but that made from Maize being the most valuable of all, especially for butter-making, though the crushed Oats or Wheat must not be omitted, for the firmest and best quality butter will be obtained from the feeding with Oats or Wheat. Still, as ensilage is by no means available for all dairy farmers it is important to consider the next best foods for use in the absence of pasture grass, and that which we find to be best is pasture hay well secured, with Potatoes of the large cattle-feeding varieties passed through Gardner's cutter and mixed with crushed Oats and Wheat, with some malt dust. In the absence



IMPROVING AND REGULATING THE SUPPLY OF FRESH BUTTER.

It will be found in considering this subject that both the dairy farmers and consumers are greatly interested in a new

of Potatoes, Mangolds, Carrots, Cabbages of the large Drumhead Savoy sorts may be given; but whenever roots are given when feeding a butter-making cow it will be necessary to avoid or diminish any unpleasant taste arising from root-feeding (except Potatoes) to give them immediately after the cow is milked instead of at milking time. These observations, of course, apply especially to the quantity of milk, because if we have made a selection of the right cows as to breed, we shall find that the more milk obtained the more butter will be produced after feeding as above recommended.

Referring to the breed of cows for the purpose of furnishing butter of the best quality, we cannot recommend any which has furnished so large a record of choice butter as the Guernseys, both in this country and in America. We once had a Guernsey cow, and whilst getting only good pasture grass, she made for several weeks in the month of June 18 lbs. per week of butter of the best quality and deep yellow colour. It is also recorded that a celebrated cow named "Elegante," of the pure Guernsey blood, and owned by Mr. L. W. Ledyard of Fernwood Farm, Cazenovia, New York, and which was capitally portrayed in the *Agricultural Gazette*, and also in this Journal on Nov. 8th, 1883, produced 19½ lbs. of butter per week; but it must be remembered as a fact of the highest importance in relation to the butter record, that in both these instances there is no doubt but that three milking daily instead of twice only would have produced a higher record than as above stated. Another point is, that where the highest record is to be attempted, the feeding generally should consist of a full quantity of the best known materials; yet, although we may have obtained butter of the best colour, aroma, and taste, firmness is also a consideration. Our chief reason for recommending the feeding with crushed Oats, Wheat, and malt dust, is to secure that firmness and quality in butter which is only or seldom attained by a system of feeding when these materials are absent.

In maintaining high records of the best butter for the longest possible period, the ordinary rules of management, if carried out with care will, with good feeding, prove sufficient; but notice should always be taken whether the cow drops her milk from the udder between the usual hours of milking, for if that occurs it will not only seriously injure the cow in the future, but also render it impossible to obtain the highest record of butter, unless milking three instead of twice daily is resorted to. When milked three daily the udder must be quite emptied at each milking, for it must be remembered that the last portion, as taken from the udder, contains the most cream, whether milking is adopted twice or thrice in the twenty-four hours. Although we have recommended the pure Guernsey cow for butter-making, it applies chiefly to the small dairies where twelve or fifteen cows are kept, as in some suburban districts; for we still think that a first-cross animal, the produce of a good Shorthorn cow by a Guernsey bull, would prove the best in forming a herd of forty or fifty cows or more. Even in that case the cows may be of Guernseys only if required, but the herds should be formed into divisions of twenty each or thereabout, for half-breeds will generally bear herding in numbers much better than animals of the pure Channel Island breeds, whether of Guernseys or Jerseys, although the former are the stronger and hardier stock of the two, yet if abortion or any other accidental disease or difficulty occurs the disaster will be more easily dealt with.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—This is more required at this time of year than at some other periods, for there is not only the work to be done for the late seedings of Lent corn, but also at all available intervals after rain occurs, by working down any land which may have previously been too rough. The rains have, however, arrived just in time to save a large amount of horse labour both in harrowing and rolling on any fallow surfaces intended either for sowing with drege or Barley; but the importance of reducing the surface is the necessity of a fine seed bed to receive the Clovers and grass seeds of any variety. They are all small except Sainfoin seeds, and require to be covered shallow with fine loose soil, otherwise they may be buried too deeply or not at all. The horse labour, too, when it is driven away from the seedings as just named may be well employed on the fallows intended for root crops, some of which are usually at this time of year rough and ready for being broken down. Now is the time to prepare for Mangold seeding, the dung being first laid out and spread. Some farmers used to lay out manure on the fallow and plough it under in the early part of the winter. We have, however, to thank Sir J. B. Lawes for many savings in our farming business, and he has told us that fallowing in dung in the early part of the winter is liable to be diminished in value by some portion being washed out during the heavy rains of the winter and early months, and there is no doubt but much of the soluble and ammoniacal portions of the manure are lost, especially upon cold wet

soils. It is even a question whether yard dung, box, or stable manure should be applied at all to the early seedings for the Mangolds or early root crops. It frequently happens with this crop as with early Potatoes, whilst laying out dung the land may have been drilled and seeded in combination with artificial manures, and gain thereby in adverse seasons a good early seeding, when by laying out manure from the homestead the weather may change and the best seed time be lost. If full crops of ripe Mangolds are required the seed should be deposited in the month of April if possible. Some farmers, however, are afraid of the young plants being injured by frost; but in our experience, even from the first introduction of Mangolds as food for cattle, we have never seen any young plants injured by night frosts. There is a very general opinion prevailing that in the field cultivation for Carrots the seed should be sown in March at the latest; but that is not our experience, for the best Carrots and the greatest weight per acre we have ever grown were sown in the month of May, and frequently as late as the 20th day of that month for the best of all reasons, because it saves one hand-hoeing at the least; for if the seeds are deposited before the soil is warm enough for them to vegetate immediately, they do not come up until the weather and temperature become favourable. That is not the case with the weeds, for their seeds vegetate immediately, and before any hoeing can be done the young Carrot plants are completely hidden. We have seen this the case in some seasons when the weather has been rainy, so that the Carrots never could be hoed at all, the only exception being when the seed is drilled or dibbled on the stretch at 18 inches apart; the land can then be horse-hoed between the lines, and giving also an opportunity for effective hand-hoeing.

Hand Labour.—In numerous instances at the present time the sheep especially flocks of ewes and their lambs, are very lame in various districts with the foot-rot, as some farmers call it; but we call it the epidemic lameness, which frequently breaks out in consequence of its having prevailed ever since the year 1839, when it first broke out. It has since appeared whenever the season favoured it, because those animals which at breeding time have been mated were lame; it has therefore now and for many years become an hereditary disease, especially amongst the Hants and west country Down breeds, whereas long since we have been connected with sheep-breeding it was only the horned ewes and a few Downs kept on the same farms which ever had the foot-rot at all; but since 1839 all sorts and breeds have been subject to the lameness of an epidemic character more or less, and we see not the slightest probability of being entirely free of it again.

Live Stock.—Cattle are generally in good condition where free of foot, and-mouth disease, for the winter has proved one of the most favourable we can ever recollect, especially for dairy cows and young cattle. The bullocks in the boxes, too, where well fed, have done extremely well, as it is generally known and admitted that a mild winter with equable temperature is always favourable, inasmuch that warmth is considered equivalent to so much food. The early lambs bred from the best horned Somerset and Dorset ewes have sold well in consequence of the vegetable markets being well supplied with all accompaniments required where lamb is in season and forms a portion in the banquets of the wealthy classes. There is one thing which every practical farmer should take note of this season, that those who annually buy sheep for fattening in the winter months as a rule have made but little or no profit, whereas those who have kept a breeding flock will reap a considerable benefit.

OUR LETTER BOX.

Renovating Pasture (S. P.).—The present is a very good time for sowing grass seeds in your field, and the most practical advice we can give you is to state the present condition of the pasture, the nature of the soil, and the acreage to be renovated, to a seedsman or firm who pays special attention to this subject, and you may rely on receiving the right quantity of a suitable mixture for effecting your purpose.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1884. April.		Baromet- er at 32 ^a and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday	6	29.627	52.6	49.3	S.	48.0	58.5	45.2	84.4	40.2	0.355
Monday	7	29.496	47.0	45.8	N.W.	48.0	54.6	46.0	69.6	45.6	0.068
Tuesday	8	29.914	50.0	47.6	E.	47.7	62.2	42.3	106.0	39.8	—
Wednesday ..	9	29.975	51.2	46.4	S.E.	48.8	60.8	46.8	105.5	42.3	—
Thursday	10	29.938	47.8	42.4	N.	48.7	54.4	36.8	95.7	34.6	—
Friday	11	30.077	44.8	40.3	N.	47.8	51.7	37.2	84.3	31.3	—
Saturday	12	30.071	44.5	42.0	N.E.	47.6	53.1	38.3	75.8	33.2	0.010
		29.875	48.3	45.0		48.1	56.5	41.8	88.8	38.1	0.433

REMARKS

6th.—Fair day, with some sunshine; wet evening.
7th.—Heavy rain till about 10 A.M.; dull morning; fine afternoon.
8th.—Fine all day, but rather dull afternoon.
9th.—Very fine all day; extremely bright moonlight night.
10th.—Bright pleasant day; very bright moonlight night.
11th.—Cloudy day; a little sunshine in afternoon.
12th.—Dull and hazy morning; drizzling rain in afternoon; clear cold night.
The middle of the week was very fine, warm, and bright, but the beginning and the end were unsettled. Temperature about three degrees below that of the preceding week, but still about four degrees above the average.—G. J. SYMONS.



24	TH	Royal Society at 4.30 P.M.
25	F	Quekett Club at 8 P.M.
26	S	Royal Botanic Society at 3.45 P.M.
27	SUN	2ND SUNDAY AFTER EASTER.
28	M	
29	TU	
30	W	Society of Arts at 8 P.M.

AURICULAS—A REVIEW WITH REFLECTIONS.

AURICULAS are in the ascendant just now, and thousands of plants are sparkling with their lovely flowers. For chasteness in outline, perfection in character, and striking contrasts in colour, it is questionable if so much beauty is condensed into a similarly small space as in the flower under notice. It is quite true that all admirers of flowers cannot equally appreciate the charms of this pretty Alpine gem. We have heard a most extensive cultivator of hardy flowers describe the Auricula as "stilted, formal, and chilling," but that certainly does not represent the taste of the majority. There are still more individuals who cherish flowers, including Auriculas, but who are unable to comprehend the "points" of merit in a flower to which florists attach importance. We know that such is the case from the many seedlings that have been sent to us from time to time as possessing merit, but which were practically worthless as judged by the florists' high standard of excellence.

Most, if not all, the growers of repute have similar experience. On this subject the Rev. F. D. Horner wrote to us eight years ago:—"Some beginners (for one told me so) feel confused and lost as to what constitutes excellence, and even difference in the flower. One bemoaned the blindness through which he could see no distinction worth mentioning between a white and a grey edge. Well, there is more hope of him than of one fair visitor that day, who remarked that these Auriculas might be rare but they were not pretty! I do not know that these her words are worth embalming in the Journal, but it is well that tastes so charmingly differ. The sublimity of the Sunflower, the beauty of the broad Pæony, the brave spectacle of heavy masses of bloom, are the delight of many eyes; but without even affecting to despise these greater things, a florist with his flowers has that subtle enjoyment of his eyesight which delicate and curious flowers so well afford. May I, then, say to younger growers of Auriculas than myself, Do not be discouraged by present confusion and lack of discernment. You will feel and see your way as you go on. With an accustomed eye you will grow to detect a difference where now you see none. The differences that are so delicate grow to be quite plain. And this is one pleasure with Auriculas, that where the outside world that coldly wonders and passing on sees small variety, the eye of the florist finds many enjoyable and delicate degrees of beauty. I am sorry the Auricula is left languishing in metropolitan favour. One would have thought its bare claim as a spring flower would be enough to make it a great favourite everywhere."

With that we concurred. We regretted also that the flower was then "languishing" in the south; and hence it was that we readily gave such support and encouragement as was in our power to the effort that immediately followed in forming a southern branch of the National Auricula Society, which then only had one annual exhibition—namely, at Manchester.

When the southern section of the Society under notice, No. 200.—VOL. VIII., THIRD SERIES.

which has just held its seventh exhibition, was established, the whole question of special societies was very properly discussed in the horticultural press, and, rightly or wrongly, a verdict was arrived at that such societies have a tendency to degrade horticulture, and likely in the long run to do more harm than good. We were not able to assent to that dictum, and on the occasion of the first National Auricula Show being held in the Crystal Palace on April 24th, 1877, observed that such shows really promote horticulture in the most direct and practical manner. They take its departments in detail and perfect them the more quickly by a concentration of effort incident to their nature, and in the end do good and not harm. That first show was a great success, and we expressed a hope that it would be succeeded by others still greater, and that these beautiful flowers would increase in numbers and popularity. Greater shows followed, and the largest and the best of the series is reported in another column of our present issue.

Auriculas have also increased in numbers, and not a few very beautiful new varieties have been raised. Auricula growers are similarly more numerous, but there has not, perhaps, been a proportionate increase in the number of exhibitors of florists' flowers in the south. Though we should be glad if the number of exhibitors were tenfold greater than at present, we still see little to deplore in this absence of rapid increase. Exhibiting and making money by the process is not the object of all who grow flowers, only a mere fractional part of the community estimate their favourites by the amount they will win. Some possessors of small collections of plants hesitate to stage them in public from the conviction that they have only a very remote chance of competing successfully with the professional showmen, whose skill and resources they fear to encounter. Still it must be said that those who exhibit do so with no sordid object, but as an earnest of their desire to encourage others to become cultivators of flowers that afford such delight to the possessors. So earnest are many that they risk injuring their plants for the gratification of others, and from a financial point of view lose far more than they gain by their enterprise in exhibiting. Those are the true florists that are honoured and admired, and they have the reward of having induced the more extended culture of the flowers they love in the gardens of hundreds of persons whose lives are made happier and homes brighter thereby. That is or should be the ultimate object of the promoters of flower shows special or general, and so long as that object is apparent there will be no lack of interest in their work.

Exhibitions of Auriculas, of all flowers, are among the most beautiful spectacles that can be provided for the delectation of the public. They are also instructive. It is there better than anywhere that the inexperienced admirer and young cultivator may ascertain the characteristics of high-class flowers, and the defects of blooms relatively inferior. Information is readily given by experts, florists' "secrets" having long since been relegated to obscurity. The shows in question further afford, or ought to do, an opportunity for agreeable gatherings of friends who may derive enjoyment from intercommunion and pleasure from the "simple source of flowers." If they fail in this respect they are at once shorn of an important element in contributing to their permanency and success; as far as possible they should be chosen as favourable occasions for removing grievances, real or fancied, and mitigating asperities, and those who act in a contrary spirit incur a grave responsibility. This we are positive is the conviction of the majority who, like ourselves, wish to see floral societies prosper and harmony prevail throughout the horticultural ranks.

TRANSPLANTING ONIONS VERSUS THE MAGGOT.

It is stated in an old edition of the "Encyclopædia Britannica" that transplanted Onions "remain free from wireworm No. 1856.—VOL. LXX., OLD SERIES.

or rot, while those left in the original seedbed are frequently much injured by both." And further on in the same article, "Possibly the soot puddle may also be beneficial, by tending to repel the larvæ till the bulbs be too strong to be attacked." Have the readers of the Journal found that transplanted Onions are free from grub? I live in a district where nearly every cottager has an allotment garden, and nearly everyone thinks he knows all about the Onion grub. One ascribes his freedom from the pest to transplanting, another to the fact that he never stirs his Onion beds after the seed is sown more deeply than is necessary to cut down weeds. I remember some years ago reading and making a memorandum of an article in a gardening paper in which the writer stated that mulching between the rows of Carrots and Onions with short grass would effectually prevent damage by grubs. This remedy I have tried and found wanting. While reading the article on Onions in the "Encyclopædia," I thought there might be some truth in it, as in transplanting these the bulb is carefully kept above ground. At any rate, where transplanting is followed there is less of the bulb below the surface of the soil than where they are sown in permanent beds, and consequently there is less room for the grub to attack.

Rather more than a year ago I took the following note from a gardening paper:—"To half a pound of soft soap add a pint of hot water, thoroughly dissolve the soap, then add half a pint of paraffin, stir well, then add two quarts more of hot water, put into a stone bottle, and shake well before using. This mixes readily with hot or cold water, and for syringing or sponging can be diluted as necessary." I not long ago sponged a large plant of *Croton pictum* with the above mixture, using rather less than a wineglassful to three gallons of cold water, and not a leaf was damaged, and I intend trying the same upon Onions and Carrots this year if they show signs of grubbing. I am acquainted with a market gardener who planted about two acres of newly trenched land with Raspberries and Strawberries which were soon attacked by grubs. He tried sowing soot to no purpose. At last to save the plants he set men to work with trowels to take away the soil from the roots, pick up what grubs they could, and before returning the soil, to give each root a handful of soot, and in this way, at a cost of £20, he saved the plants from destruction. If the mixture I have mentioned above should answer, it will be both cheaper and more quickly done than the plan he adopted. An amateur who grows remarkably good crops of Onions says that transplanting and constant treading between the rows and as close to the bulb as possible will effectually prevent the attacks of grubs.—T. A. B.

ROSE MARECHAL NIEL.

THIS much-appreciated Rose will not live upon any stock now employed for a longer period than five or six years. A few instances to the contrary may be pointed out, which I readily grant; but these are exceptional cases, for where one plant is found in good health and vigour for a longer space of time than that mentioned, hundreds succumb in less than half. The Manetti is a useless stock for this Rose, and very few indeed are now worked upon it, as it is exhausted in one year by such a strong luxuriant grower, even if planted deeply in order to induce roots from the junction of the scion and stock. A few years ago I planted out nine growing Roses on this stock from 6-inch pots. They grew well, making shoots 20 feet in length or more, but the whole with one exception died the following spring as soon as they started into growth, for upon examination the stocks were found to be dead. The one that lived had produced roots from the union of the scion with the stock, but not sufficient for it to make much progress the second year, and was in consequence pulled out. The longest time I have had a plant live on the Briar has been five years, but its progress was slow. It commenced to canker badly, and has done but little good since.

I am distinctly in favour of Roses upon their own roots. I believe they will live longer and flourish better than when upon stocks. I have two plants now five years old that have up to the present time done well; but upon one there is now a slight trace of canker, although the growth made during the past year has been remarkably strong. My experience up to the present justifies me in saying that the *Marechal* is one of those Roses that enjoys a fast life and a short one. I do not believe, whether grown upon its own roots or worked upon a stock, that any dependance can be placed on it living for any great length of time: still it is worth cultivation, for no other variety with which I am acquainted, the old "Glory" excepted, will yield a greater per-centage of fine flowers with less trouble. The only system by which success can be attained is to keep on hand a stock of young plants, which are readily raised from cuttings, for no Rose will strike root with greater freedom. If the roof

of a house has to be covered, why might it not as well be covered with, say, half a dozen plants as to wait for a longer period of time and cover it with one large specimen? The former is decidedly preferable, because the one might die and then cause a break, but with a number of plants they would not all be lost together. If one or more showed symptoms of disease they could be pulled out and young vigorous plants put in their place.

This is a valuable Rose for pot culture, and should be raised annually for early flowering and then conveyed to the rubbish heap; or if strong shoots issue from the base they can be cut close back and retained for a second year. Well-ripened plants require but little forcing, and blooms may be had in quantity during February from plants raised the previous spring. Shoots in a single season will often attain a length of 25 feet, which will produce on an average twenty blooms. If a dozen plants are grown the figures given will perhaps be the least number obtained from any of them.

Those who have established plants will now be able to take good cuttings. Wood not half ripened should be selected; soft shoots about 3 inches in length slipped off with a sharp knife close to where they join the old wood will also root freely at the present time. If firmer wood is employed the cuttings will be much longer forming roots, and a much greater per-centage of deaths will be the result. If the cuttings have two joints that will be ample; both leaves should be left upon them, and the top eye only out of the soil. They must be inserted in sandy soil or all sand in pots, pans, boxes, or handlights. Whichever are used they should be covered with bellglasses or sheets of glass, so as to exclude air, after a good watering has been given, if successful results are to follow. After insertion the cuttings should be stood in a heated structure shaded from strong sun, and in about three weeks they will have formed roots. When in this stage air should be admitted gradually until they can have full exposure, and the sooner afterwards they are placed singly into 3-inch pots the better.

After potting they may be returned to the structure in which they were rooted, and kept in a close frame for ten days or a fortnight until they recover and commence rooting afresh. In a warm moist temperature they will soon commence growing vigorously, and should be supplied with an upright stake. When about a foot high they will have filled their small pots with roots, and should be transferred into others 3 or 4 inches larger, and when established in these pots give them positions where the temperature is a little lower. It should, however, be lowered by degrees until they can endure a cool house where air is admitted freely by the time they have filled their pots with roots. Care must be taken not to move them from a warm to a cool house without gradual preparation, or they will not make any progress for a long time. The young plants should by this time be 4 or 5 feet high and ready for 10-inch pots. When established in these some of them will continue to extend their leading shoots, while others will produce strong suckers from the base, which should be encouraged, for they will extend with rapidity and make better plants before autumn than those that have extended from the top eye of the cutting. To grow these plants well they will not need larger pots than those named, and from the time they are placed in their flowering pots they should be trained under the roof of a house with a southern aspect until they are well ripened in autumn.

In potting the soil should be pressed firmly and the roots of the plants should be disturbed as little as possible, only removing the drainage. From the first they must not remain in their pots until they are crammed with roots, but should be shifted as soon as the roots have reached the sides of the pots. If checked by this or any other cause they seldom make satisfactory progress.

The soil that will grow them well is rich fibry loam, a seventh of manure, and about a 6-inch potful of bonemeal to every barrowful of soil and nearly the same quantity of soot, with a little sand. For the first two pottings a little leaf mould may be employed with advantage, for it will assist them to make a quick growth. If planted out use only loam, and substitute for the manure quarter-inch bones, which are better, for the soil sours quickly when manure is employed.

Careful watering is needed for a time after potting, but when they are rooting freely liberal quantities must be given them; in fact, in no stage, not even during the winter, should they be allowed to become dust dry. When their pots are full of roots weak liquid manure may be given every time they require water. Better even than supplying stimulants in a liquid state is to sprinkle some suitable artificial manure on the surface soil. While growing the plants should be syringed liberally to keep red spider in check, but there is not much fear

of this or aphides appearing while the plants are growing vigorously.

When well ripened in autumn they should be taken down from under the roof and five strong stakes placed at equal distances round the sides of the pots, the growths trained round them, and then stood outside until the approach of sharp weather. This further ripens, and is the means of inducing them to rest early, which is the secret of success, for they will start earlier and better into growth afterwards. If the blooms are wanted for cutting the system of training given is the best, for they will break from every eye along the shoot.

When the plants are raised for the express purpose of planting out it is best done while they are in active growth, in fact when ready for placing in their pots. By planting when in this condition they get well established before the winter, which is important, in order to secure a strong and vigorous growth the following year. The *Maréchal* being such a free-flowering Rose the young plants should not be allowed to carry the quantity they will produce the following spring after planting, the whole if possible should be removed, which will be found to be very beneficial to them. The quantity of flowers they will carry if allowed to remain exhausts the plants to a much greater extent than many suppose.

Pruning can be conducted on two principles, but the one by which the greatest quantity of bloom can be obtained should be practised. All the strong growths that issue from the base of the previous year's wood should be retained and laid in, while some of the weaker shoots can be shortened or cut out to make room for them. The side shoots or twiggy growth may, if likely to become crowded, be cut out or shortened back to one joint. The very weakest shoots are taken out, while others are only shortened back or thinned. Under this system of pruning more blooms will be produced than would be the case if the plants were cut hard back and had to produce again long strong shoots to fill the space. This plan need only be adopted if large flowers are required in preference to a greater number.—WM. BARDNEY.

PETROLEUM AND ITS USES.

ALTHOUGH so much has been written on this as to its value in horticulture there are many who have not commenced using it, and, on the other hand, there are others who have long since discarded it and taken up other more expensive and less effectual insecticides, simply through accidents occasioned by the paraffin being injudiciously applied. Great care is necessary in the preparation previous to its being used on tender plants, as without this success is very uncertain. I have used it now for several years successfully on many stove and greenhouse plants, such as *Crotons*, *Dracenas*, *Gardenias*, *Stephanotis*, *Azaleas*, and *Camellias*, and therefore I am in a position to say it is a safe and effectual remedy against mealy bug, scale of all kinds, and thrips. I cannot assert it is destructive to red spider, and it is of but little value for aphides, at least such is my experience; but there are other very simple means for the destruction of these pests.

In the first place water heated to 110°, or as hot as the operator can bear it, should be used, as at this temperature the oil mixes better, and it will also be more effectual. Two ounces to a gallon is considered sufficient for most of the insects above mentioned; and in measuring, for want of something better, we have an ordinary 6-oz. medicine bottle, using this filled for four gallons of water. Two syringes are set to work, and after the whole has been thoroughly mixed by forcibly discharging the contents of the syringe into the vessel used for the purpose several times, one man then commences to syringe the affected plants with the mixture, while the other continues stirring the contents of the pot with all the force possible, otherwise the oil floats on the surface. Where one syringe only is available every third syringe should be applied to the plants. Some use soft soap with the oil, but, after trying both ways, I fail to see any advantage from using the former substance when the latter is sufficient by itself. Dull weather should be selected for applying petroleum, or in the evening after the sun is off the house, as I have found the sun affects the oil in such a way as to be very injurious to plant life. It is the safest plan to wash the oil off with clear water some time after, although in dull weather we have frequently left this on them without any apparent harm. In mild weather we carry our plants outdoors and lay them on their sides to clear them, as in this way any insects that fall off uninjured can be left outside.

As a winter dressing for Peaches the trees here have received nothing more than this for several years, and we are never troubled with either scale or bug now. Care is taken to wet every part of the tree, and this is carried out in the same manner as in the case of plants. The time taken in applying this on Peach trees is very little compared with the old system of brushing all the main stems of trees

with various other mixtures, not to mention the fact of its being so much more effectual, while several of the latter are equally as dangerous if not applied carefully.

Climbers such as *Stephanotis*, *Thunbergias*, *Tacsonias*, and *Passiflora*, when affected with mealy bug, we look over frequently, applying a mixture of water and paraffin in about equal parts with a feather; a touch from the tip of the latter dipped in this proves instant death to this pest, and by adopting this plan we can keep free from this much-dreaded insect. For sponging, too, paraffin is in request, this leaving more easily the desirable and beautiful gloss on the leaves, and also causes the dirt to separate more easily; but in this case soap is used with it, the former in the proportion of about a teaspoonful to a gallon of water, care being exercised to stir it well, so as to avoid taking the oil from the surface in the sponge.

If petroleum of good quality is obtained, and strict measures taken in its preparation, no one will have occasion to abuse it, as on these two points success depends. We use it here for cleaning the glass and woodwork of the houses, and find it more speedy in its action than soap alone.

In the fruit garden petroleum is indispensable, many gardeners using this for soaking various kinds of seeds to protect them from the attacks of birds and mice; but we find it is not proof against the latter by itself, but if a little red lead is shaken over the seeds when wet they will not suit their tastes so well. It is thought by some that the Celery and Onion flies can be partially checked by syringing this over the plants occasionally in the evening, and for American blight on Apple trees it is a well-known remedy, as well as for the scale that infests Pear trees.—A YOUNG GARDENER.

THREE PRETTY COOL HOUSE PRIMULAS.

PRIMULA OBCONICA—known also as *P. poculiformis*—may be allowed to head the list, for it is so charming and floriferous; indeed, when once it commences flowering it is difficult to say when it will stop. I have had a plant in flower since last October, and it looks as if it would continue until next October, and it is now crowded with large heads of pale lilac flowers, each about three-quarters of an inch across. We are indebted to Messrs. Veitch for its introduction, and the Journal was the first to publish an engraving of it. It is not difficult to predict a happy future for the plant, as it is so easily grown, and gives an excellent display, far more than compensates for the small amount of trouble incurred in securing good plants. The plant referred to above was one of a batch raised from seed last March in a cool greenhouse, and grown through the summer in a similar house. I am now about to sow a fresh batch of seed, with the idea of procuring plants for next winter's flowering, and the seed will be treated very much like that of the Chinese Primrose, using well-drained pots filled with light sandy soil. Well water the latter before sowing, strew the seed thinly on the surface and sprinkle a little sand over it, cover the pot with a sheet of glass, and place it on a warm shelf in the greenhouse. When the young plants are large enough they should be potted singly in thimble pots, and afterwards treated like the Chinese Primrose. It is a native of Japan.

Primula floribunda is a little-known gem well deserving its name, for it is impossible to possess a plant which flowers more freely. Commencing in a cool house in September or October it will continue nearly to the same months of the following year unless prevented, which is advisable, or the plants will quite exhaust themselves; and if the blooming is thus stopped the plants may be shaken out, repotted, and grown freely, as I believe this species is nearly a perennial. I have some plants in their third year, and they are now full of flowers. The latter are bright canary-yellow, about half an inch across, arranged in whorls similar to *P. japonica*, but the rows are not so numerous as in that species. It seeds very freely, and there is no difficulty in obtaining a large stock. They are easily raised in a cool house. They are very small, and consequently must only be lightly covered. The foliage is very hairy, and liable to decay if constantly wetted, hence it is necessary to avoid doing so. It is a charming little plant for arranging with small Ferns, very dwarf in habit; my tallest plants are not more than 9 inches high.

P. verticillata.—This species is better known, but very much less cultivated than it should be, as it is so pretty during the early spring months, producing good trusses of sweetly scented bright yellow flowers, with white powdery calyces and footstalks, which are in happy contrast with each other; the leaves are also thickly coated with white powder, and the whole plant has a very distinct, and, to my mind, beautiful appearance. All such plants deserve to be more generally cultivated. I do not wish to recommend the culture of weedy plants, but there are many looked upon with a suspicious eye by gardeners, which would really

brighten and diversify the appearance of conservatories and cool greenhouses.—T.

VEGETABLE MARROW CULTURE.

LIKE Tomatoes, Vegetable Marrows are not grown so much as they should be. Large rough-growing sorts with fruits like cattle-feeding productions are not likely to make anyone grow them for frequent use in the kitchen, but some of the small-fruited varieties are so suitable for the dinner table, and so excellent in flavour, that when once they are fairly and rightly introduced no one would allow a season to pass without having quantities of them. In sending vegetable to the kitchen some years ago we were never asked for a second supply of the large Marrows, but since the small ones have been sent in they are put on the bill of fare repeatedly, and many of them are preserved for winter use. No Vegetable Marrow for the table should be more than 2 lbs. in weight. If two or three times the weight of this they will be coarse and tough, and void of the true pleasing flavour.

In raising young Vegetable Marrow plants a slight heat, such as that afforded by a gentle hotbed or frame, is a great assistance in germinating the seed and pushing forward the young plants; but when the season has advanced so far as this they may be raised under a handlight or in the open, and plants of all descriptions should now be daily exposed to the air, as in a few weeks hence they will be planted in their fruiting quarters. This may be on a manure or refuse heap, as they do exceedingly well on such positions, and they will also succeed on small mounds placed on a south border or any other sunny position. When the compost in which they have to grow is made up chiefly of manure the plants produce thick stems and large leaves in it, but this is not the way to get fine fruits or plenty of them. Robust growths and astonishing productiveness are never associated, but moderate growths and heavy crops may easily be produced. To accomplish this the soil should consist of turfy loam or common garden soil with a small quantity of horse droppings added, and in this it will be found that the plants will make hardy short-jointed wood with small leaves, and one or more fruits at every joint. Many who have seen our Marrow plants with the fruit clustering along the stems wonder why they are so prolific, but it is solely the result of stinting them at the roots. Plants poorly supplied with feeding at first come into fruit very much sooner than those which make a large quantity of soft growths before a fruit is formed.—A KITCHEN GARDENER.

CACTACEOUS PLANTS.

(Continued from page 190.)

ECHINOCACTUS, *Link and Otto.*

(The Hedgehog Cactus.)

THE Hedgehog Cactus genus is one of the largest in the whole family, and the two hundred species comprised in it include some of the most handsome and curious forms in this portion of the vegetable world. They are not so remarkable for beauty and symmetry of structure as the Mamillarias, but the flowers are usually large, brightly coloured, the tints most predominating being yellow, rose, and purple, while many are pure white. The flowers also in numerous species attain a considerable size, almost rivalling some of the Cereus; and as they frequently open for several days in succession they have not the defect of fugaciousness so common in other members of the family. The strangest character connected with the Hedgehog Cactus is, however, the enormous size which some of them attain. It is true they do not grow to so great a height as the Cereus, for few, even of the largest, exceed 4 or 5 feet in height, but they occasionally become excessively bulky, as in *E. Visnaga*, sometimes weighing as much as a ton, though there is every gradation from that to species as diminutive as the Mamillarias. The majority of globular stems like the Melocactus, with more or less strongly marked ridges from the summit to the base, usually slightly spiral, though frequently nearly vertical. In a few species these ridges are broken into a series of tubercles, which are sometimes nearly as distinctly separated as in the Mamillarias, and in others are partly confluent, until in the extreme cases they can only be traced by slight prominences upon the ridges. Whether moderately or strongly developed these projections are termed tubercles as in the other genera, and each bears a cluster of spines, which vary in size from extremely small points that are scarcely discernible to gigantic and formidable horny spines 3 or 4 inches in length, straight and rigid, or hooked at the point; they are also sometimes in two series, the outer spreading and the inner erect. These furnish characters which assist in determining the species, and Labouret has given an elaborate system of classification, founded chiefly upon these appendages.

The flowers are produced from near the apex of the younger tubercles at the upper part of the stem, and are borne just above the cluster of spines. Sometimes they are clustered in a dense woolly substance somewhat like the cap of the Melocactus at the summit of the plant. The calyx forms a tube varying in length, being sometimes very long and funnel-shaped; it is usually scaly, the scales gradually passing into the

lobes of the calyx, and these in turn into the petals, all the parts being very numerous, and not readily distinguishable from each other. The stamens are in great numbers, the filaments being united to the tube of the calyx. The style is columnar, the stigma with many rays, and the fruit is berry-like, to which the lobes of the calyx frequently adhere.

By various authors a few of the species have been separated under other generic names, as *Malacocarpus* of Salm Dyck, *Gymnocalcium* of Pfeiffer, and *Astrophytum* of Lemaire; but these have been found to be insufficiently distinct, and are now united with the *Echinocactus* by Hooker and Bentham.

The species are widely distributed, being found in Mexico and various parts of South America, but in the first-named country and adjoining regions they chiefly abound. There they are found in arid stony or rocky places, with very little soil for the roots, exposed to a high temperature in the summer and a much lower one in the winter—indeed, some endure frost and snow with such little injury that they might be reasonably expected to be hardy in this country. Some have been found to resist our winters, but comparatively few have succeeded at present, and doubtless the chief reason for this is the much greater amount of moisture in the soil and atmosphere.

Culture.—In growing the majority of the *Echinocactus* the chief points requiring attention are providing a well-drained soil, as they are all impatient of the least excess of water, and regulating the supply of moisture with much care. Most of the Mexican species in particular produce but slender and few roots, and only need small pots, as an excessive quantity of soil is positively injurious. These, too, will succeed in a temperature between 45° and 50° during the winter months, but then require scarcely any water.

Propagation.—Few of the Hedgehog Cactus produce offsets, and are therefore not readily propagated in that way. When, however, the upper part is injured, or in the case of the columnar species if that portion is cut off, the lower part of the stem often produces several shoots like other Cactæ, and these can be treated as previously advised for offsets. In Mexico and elsewhere in North America certain species are very abundant in particular districts, some growing amongst the grass and scarcely visible, and travellers relate that where these are injured by fires or cattle they form a great number of shoots, becoming closely branched tufts or cushions of considerable size. The majority of the species can be easily grafted upon the *Cereus* or other genera except the *Opuntias*, to which they do not unite readily. Grafting is, however, unnecessary in most cases, as, except the very delicate species or abnormal crested varieties, they are best on their own roots. A few years ago Mr. Peacock had an interesting specimen of *E. Pottsi*, which was grafted upon three stems of *Cereus tortuosus*, and being raised several inches above the surface of the soil it had a very strange appearance.

SELECT SPECIES.

In so large a genus it is obvious that only a few can be named in these notes, but some of the most distinct of these in cultivation have been selected. Collections in general do not include perhaps more than a fourth of the entire number known.

ECHINOCACTUS BREVIHAMATUS, *Engelmann*.—A pretty and distinct species from San Pedro, very noticeable for the prominent globular tubercles, which might almost cause it to be taken for a *Mamillaria*. The stem is cylindrical, 5 to 6 inches high, and 4 to 5 inches in diameter. The spines are in two series, those of the ray twelve, half to three-quarters of an inch long, the central one 1 inch long, hooked at the point and yellowish brown in colour. The flowers are about 1 inch long, of a pale rose tint, but have a deeper coloured mid-vein, which brightens the flowers considerably.

E. CERATIOTES, *Otto*.—An elegant plant, which from its columnar growth and numerous rounded ridges has a very distinct appearance in a collection. The best specimens at Kew are 2 feet high, 8 inches in diameter at the base, and nearly as much at the top, except where young growth has been recently made. The ridges are twenty or more in number, half an inch deep, nearly as much across, somewhat rounded, and deep green. The spines are in clusters of twelve or more, 1 inch apart on the ridges, seven or eight of the outer spines being white, fine, and hair-like, four or five inner ones being rigid, 1 inch long, and of a bright reddish colour on the young growth, which has a pretty effect. It is a Chilean plant, and has been in cultivation for more than thirty years, but is rather scarce.

E. CYLINDRACEUS.—A Mexican species of formidable appearance, furnished with long and powerful spines, which interlace over the plant in a strange manner, and affording it a most effectual protection. The stem is globular, in the largest specimen I have seen about 6 inches high by the same in diameter. The spines are horn-like, with nodes like the antennæ of some large insects. They are 2 to 3 inches long, interlacing flat on the surface of the plant. Others are spreading or curved, 3 to 4 inches long flattened, with a reddish tinge. As a curiosity this is one of the most striking of the genus. It was introduced from the Colorado district in 1877, but is scarce in collections.

E. ECHIDNE, *De Candolle*.—A distinct and rather attractive plant, which owes its name apparently to its cylindrical form and abundant spines, and to the former character probably is due the name of Viper Cactus which some have applied to it. The stems are 6 to 12 inches high, 6 inches in diameter, with eleven to twelve ridges 1 inch deep, and spirally arranged on the stem. The spines are half to 1 inch long, rigid, greyish white, and tipped with reddish brown, and are in clusters of seven to eight, about an inch apart on the ridges, their base being surrounded by a thick grey down. The flower is of moderate size, and bright yellow.

E. ELECTRACANTHUS, *Lemaire*.—Distinguished by a bold appearance that renders it quite unique and easily recognised. Well-grown plants are from 18 inches to 2 feet high, and 1 foot in diameter, with twenty-two prominent angular ridges 1 inch deep and the same in width, deep green, but having a cartilaginous edge. Upon this are borne the spines in clusters of nine, 2 inches apart; the spines are equal in size, 1 inch long, rigid, horn-like, and

yellowish, the central one bright red at the base. The flowers are clear yellow. It is a native of Mexico, whence it was introduced some thirty or forty years ago.

E. HORIZONTHALONIUS, *Lemaire*.—A beautiful species, which, according to Engelmann, is found growing in strong soil at the summit of hills from Pecos to El Paso and north to Dona, and where it flowers freely from April to July. It varies greatly in size, but is globular in form, with nine to ten thick ridges, on which the clusters of spines are very closely set, the number usually being seven, thick and rigid. The flowers are funnel-shaped, purplish pink, the sepals being tipped with a darker shade of purple, and have a pretty effect when opening in the sunlight. The stamens are very numerous, and in some flowers as many as 1200 have been counted; they also have a rather pleasing appearance, the yellow anthers contrasting with the white filaments.

E. INGENS, *Zuccarini*.—This is one of the few *Echinocactus* which furnish any product of service to man, and even in this case it is far from being in general use. Several species produce a woolly or silk-like substance at the summit of the plant, but in this one it is particularly abundant, and in Mexico, according to Dr. Parry, it is collected and employed for stuffing pillows. The filaments composing it are not long, but soft and silk-like even in colour, somewhat resembling a similar product found round the base of the fronds in some species of *Cibotium*. In the Kew museum are good specimens of the substance. Cultivated plants are 8 to 10 inches high, of globular form, with twenty to twenty-one ridges 1 to 1½ inch deep, spirally arranged. The clusters of spines are half an inch apart, and contain twelve to fourteen grey spines 1 inch long.

E. LONGIHAMATUS, *Galeotti*.—Remarkable for the length of the spines which give it a very peculiar appearance. It is also interesting for a character which may probably have some bearing on the fertilisation. It is well described by Engelmann as follows:—"The flowers form a groove

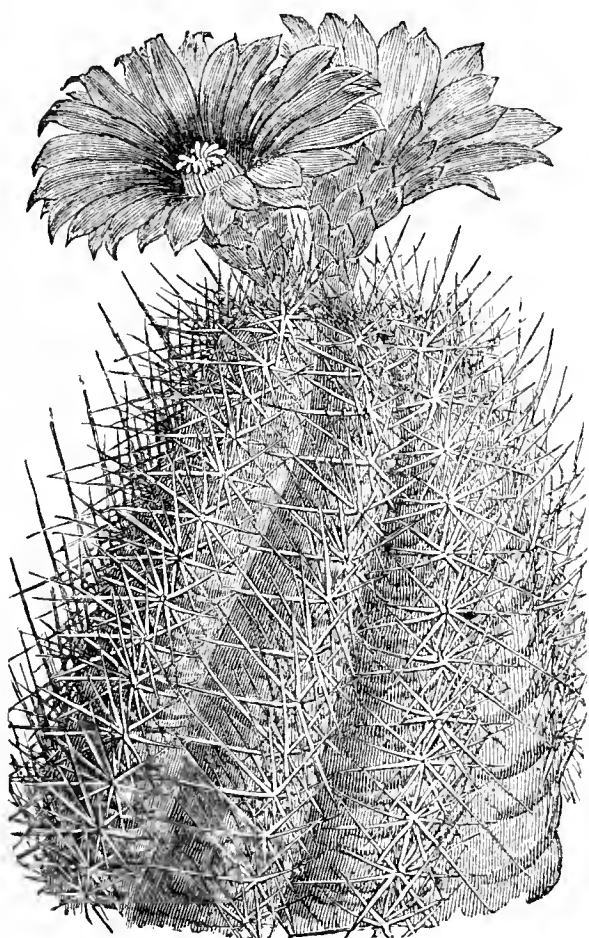


Fig. 77.—*Echinocactus rhodophthalmus*.

just above the spines, separated from the spiniferous areolæ by two to five obtuse cylindric glandular bodies, which often exude a clear viscons liquid. I find them also in *E. setispinus*, *E. Emoryi*, and numerous others, and they correspond no doubt with the glands in the groove of *Mamillaria Scheeri* and others. They appear with the flower, and are soft and fleshy at the time, afterwards they become hardened, of the texture of the spines themselves, and persistent." It is difficult to tell what is the exact purpose these serve, as, beyond the fragrance of the flowers and the abundant stores of pollen, there are few temptations for insect visitors in most Cactaceous flowers. *E. longihamatus* is a native of the Rio Grande district near the Pecos and San Pedro rivers, and it was introduced by Galeotti in 1851. The stem is globular, 2 to 12 inches high, dark green or glaucous, with thirteen ridges of circular mound-like tubercles 1 inch high. These are about 1 inch apart, and bear six to fourteen strong rigid spines each, red when young, and brownish grey or black afterwards; the central one is sometimes 4 inches long, and terminates in a hook. The flower is 3 to 4 inches in diameter, with narrow yellow petals and greenish sepals. The fruits are described as "green and acid when young, but sweet when ripe." This species is particularly well grown in the Oxford Botanic Garden collection, which includes several large and handsome specimens.

E. RHODOPHTHALMUS, *Hooker*.—A neat and pretty species of moderate growth and flowering very freely. The stem is cylindrical, somewhat columnar in form, 6 to 8 inches high, 3 to 5 inches in diameter. There are eight to nine ridges closely set together, and upon these are the clusters of nine spines, each about 1 inch long, the central one the largest, the others spreading. These are in their earliest stages of a purplish hue, but as they grow older they lose the colour and become pale. The flowers are borne at the summit of the stem, are 3 to 4 inches in diameter, formed of narrow spreading petals, the colour being a pleasing shade of rosy crimson, much darker at the base, thus forming a ring of colour

which greatly improves the appearance of the flower. The species is a native of San Luis Potosi in Mexico, and was introduced to this country by F. Staines, Esq., in 1847. It flowers during the summer months very freely, and is worth a place in any collection, but still continues rather scarce. The woodcut, fig. 77, is a reduced representation of the plate in the "Botanical Magazine," t. 4486, published in 1850. A variety named *ellipticus* was also figured in the same work subsequently, but it differs very slightly from the type.—L. CASTLE.

(To be continued.)

THE GRASS GARDEN.

I AM induced to send a few notes on gardening on grass from the great beauty displayed by such a simple flower as the common Primrose at the present time. Primroses grow here by thousands—in clumps, in broad masses, in detached straggling groups, or scattered singly in portions they have not as yet thoroughly colonised. No form of spring bedding is so simple, so satisfying, so effective, so cheap. The very atmosphere is redolent with Primrose scent, and even when we are not looking at the varied coloured masses we are quite sensible of their presence. I do not intend to write a long article detailing every step to be taken in order to beautify stretches of grass in spring. I would rather drop a few hints, and leave the rest to those who wish to carry out the principles in their own case.

A specially bad practice to guard against is that of placing plants singly over a large expanse of grass. It is not only much better, but it is really the only sensible plan, to plant out closely in clumps or round and underneath trees. The flowers are in this case effective at once, and attract attention without having to hunt them out, as is necessary when planted singly. Recently I saw some Daffodils set out in the manner here condemned. A single bulb had been put out here and there, and the whole result was a feeling of loneliness, produced by the want of taste, which would have gathered the whole of them into a few square yards, and thereby have made an oasis in a desert, which the woe-begone little plants made only the more dreary.

The present is a good time to prepare a stock of Primroses, Polyanthuses, and Cowslips, by sowing good breadths of seed in the kitchen garden. Some light vegetable or leaf soil will be of much advantage. Where time is to spare the seedlings will be rendered much stronger by pricking them out singly on a north border. Our system of planting these is to set a man with a spade to cut a like mark on the turf, gently easing it up as he removes his spade the second time. The plants are put into the little trench thus made, the turf firmed down with the foot, and the planting is completed. Polyanthus *Narcissus* which have been forced should now be clumped on suitable places. Those who like Tulips will also find them do well if transplanted now. In our poor soil I find it is necessary to lift as much turf as is necessary to include the plants intended for one position, cultivate the ground, plant out, and again relay the turf.

It will be found best to confine the *Narcissus* to a few good types, so many of the expensive new kinds are either very like older ones, or hardly worth growing at all. *Narcissus pumilus* is the earliest, and a pretty dwarf kind, looking well on grass. Good varieties are also *N. bicolor Horsfieldi*, *N. b. primularius*, *N. incomparabilis*, and the double kinds of this, *N. lorifolius Emperor*, and *N. l. Empress*, *N. maximus*, *N. telamonius*, the varieties of *N. Tazetta* and of *N. poeticus*, and *N. jonquilla*. Other indispensable flowers are Snowdrops, which do best in shady positions. Crocuses we fail to get to do, field mice completely clearing these out. Like the Primroses all these are best grown in detached clumps and masses. A few of them are pretty in portions of the Primrose plantations, but only sparingly.—SYLVANUS.

DECORATIVE PELARGONIUMS.

DECORATIVE Pelargoniums are very useful and free-flowering plants. The flowers have not the perfect form of those designated Show varieties, but they are much superior from a decorative point of view. It is chiefly through the exertions of the London market growers that we have these Pelargoniums, most of them having been raised in such establishments. Gardeners that have not been through Covent Garden Market whilst these plants are in season would be amazed at the numbers. From the present time until the end of June thousands of plants may be seen in 48-size pots with about eighteen trusses of bloom fully expanded, and as many others coming on, with sturdy foliage down to the rims of the pots. In establishments where Pelargoniums are a speciality rows of low span-roof houses, with ample ventilation and very light, may be

seen. The plants are also placed near to the glass to keep them sturdy.

The present is a good time to take the first batch of cuttings. These should be taken from plants that are adapted for early blooming. The following are excellent varieties:—Scarlet Defiance, Kingston Beauty, Le Géant, Mrs. Lewis Lloyd, Albion, Venus, Madame Favart, Lucie Lemoine, Maid of Kent, Emilie Everard, Virginalis, Scarlet Gem, and Pink Perfection. The same varieties, with the following added, are useful later in the season:—Duchess of Bedford, Triomphe de St. Mandé, Regalia, Prince of Wales and Digby Grand. The cuttings should be inserted singly in small 60-pots, the soil consisting of equal parts of leaf soil and loam with a little sand. Place them in a temperature of 55°, when they will soon root. The later batch will strike readily in a frame or pit.

After the cuttings have rooted freely harden them; take out the points of the shoots after they have grown enough to require it. When they have started repot into 48-size pots; if they are to receive another shift repot first into 54-size pots and next into 32's. The soil should consist of three parts fibry yellow loam (not sifted), one part dried horse manure that has been prepared by being turned over frequently, and about an eighth of leaf soil. The leaf soil and horse manure must be sifted. Pot the plants very firmly, and place them in cold frames or pits close to the glass. After they have rooted in the soil ventilate freely, removing the lights on fine nights. Two stoppings will be sufficient; at the last care should be taken to shorten all the shoots on the plant at the same time, so as to insure an even growth.

By the end of September the plants must be housed, placing them, if possible, in a light position and free ventilation. The earliest varieties must be kept growing all through the winter. They must also receive a little heat; about 50° will suit them admirably until the buds are well advanced, when 55° will be the best temperature to insure early flowering. On the first appearance of the bloom buds a little liquid manure will be beneficial, or a little Standen's manure. As they increase in growth they will require liberal treatment until they show colour, when only clear water must be given. Ample ventilation is needed all through the winter, at least on all favourable occasions, to keep them sturdy. The later plants must be kept cool and receive very little water during the winter, at least up to the middle of February. The plants must on no account be crowded, or they will become tall with little foliage at the base. The plants should also be fumigated about every fortnight to keep aphides in check.—A. YOUNG.

CHLORIDE OF POTASH.

IN a recent number (page 285) is an account of a powder for manuring plants, and one of the ingredients is chloride of potash. On reading the article it struck me that there is no such substance as the above-mentioned, and I am borne out in my opinion by a druggist to whom I have applied. I conclude the writer means chlorate of potash, and if so it shows that "a little knowledge is a dangerous thing;" for in these drugs, although the terminals of the names are a good deal alike, the substances are very different, and a harmless one may be next kin to a strong poison.—MEDICUS.

[The writer of the article in question has perused the above letter, and the following is his reply:—

"I can scarcely understand 'Medicus' when he states there is 'no such substance' as chloride of potash, and then goes on to say the 'substances (chloride and chlorate of potash) are quite distinct.' Chloride of potash is obtainable from any dealer in manures. The commercial salt is obtained from the Stassfurth mines, and is considered one of the best mediums for presenting potash to the soil. It is found in all fertile soils, and is also present in plants. The writer has repeatedly proved it to be beneficial mixed with other manures and given to plants. A chemist can produce chloride of potash by dissolving caustic potash in hydrochloric acid. We believe that both chlorate of potash and the chloride result from a current of chlorine gas being passed through a strong solution of caustic potash, the latter being separated from the former by crystallisation. 'Medicus' doubtless appreciates the value of the chlorate to people who are subject to sore throats; of the chloride it may be said that it is equally valuable to people suffering from garden on the brain."]

ANEMONES.

THE Windflowers, as the Anemones are popularly termed, appeal to the taste of all lovers of flowers, from the florist with his severe and, if I may use the term, classical ideas as to form and colouring through the medium of *A. coronaria* and *A. hortensis*, with their numberless single and double forms. The lover of the wild garden may, on the other hand, be gratified by sheets of the white *A. nemorosa* or the bright golden yellow of *A. ranunculoides*, the former so lovely when seen in the open

spaces of the shrubbery or near a woodland walk in association with the wild Hyacinth; while the cultivator of alpine plants may be pleased by the silky blooms of *A. vernalis*, or in the recesses of his peat bed the double forms of *A. palmata* or *A. thalictroides*. For general border decoration and cutting, too, what can be more valuable than the stately *A. japonica* and its white variety *Honorine Jobert*? who, though far behind the other varieties in the order of their arrival, are if possible even more valuable on that account, coming as they do at the close of a long procession of beauties more or less pretentious, commencing in January with *A. angulosa* and lasting with but slight intermission until October or even November.

The culture of most of the species and varieties is very simple, a few only needing any special soil or attention, and by humouring these in a few of their special requirements no one need despair of success with even the most fastidious. The majority prefer a tolerably rich light loamy soil, deep and well drained when possible. In plants grown on rockwork this cannot be too strongly urged, as many alpine plants have long roots, and being often, from their position, exposed to great sun heat, the importance of a deep mass of soil for their roots to ramble in is obvious. Most of the species may be easily propagated either by seed or division of the roots. The latter method may be practised at any time during the resting season, but preferably from January to March, according to the mildness of the season. *A. alpina* and its variety *A. sulphurea* do not submit kindly to removal or division, and the greatest care should therefore be taken to avoid breaking the small fibres which spring from the long and strong roots, and also to secure as good a bud as possible to each portion, as both of these are often two or even three years before making vigorous growth after being so treated. *A. japonica* and its varieties emit shoots so freely from all parts of their roots that it is only necessary to cut the roots into pieces about an inch in length, and place them in a box or pan in any light compost, covering them with about half an inch depth of soil, to produce as many plants as may be desired; in fact, this property of producing suckers is so pronounced in these varieties that in many gardens were it not for their great beauty they would be voted a nuisance. The varieties of *A. coronaria* and *stellata*, if carefully divided with a bud to each piece, will bloom the first year nearly as well as established plants; but care should be taken not to allow them to become either very dry or very wet, or they will decay and so cause loss and annoyance.

The seeds consist either of roundish bodies terminating in long feathery tails, or are of a roundish somewhat flattened shape, tailless, and enveloped in a downy substance which causes them to cling together in such a manner that it is only by rubbing them for some time in either sand or finely sifted soil that they can be disengaged sufficiently to allow of their being sown at all evenly. The seed should be sown if possible as soon as ripe; if not, then about February or March in pots or pans of light soil, and covered with about a quarter of an inch of very finely sifted material and placed in a frame without artificial heat, which should be kept as dark as possible until germination has taken place, when they should at once be removed to lighter quarters. They should when practicable be allowed to make their first year's growth without removal, and when at rest may be planted out in their final position in the border or rockwork. Although not wishing to deal with the subject of florists' Anemones, which has been treated of by some of our best authorities, I may mention that by purchasing a packet of mixed Anemone seed and treating them in the manner described above wondrous effects of colouring may be obtained by many who would not desire to grow the choice and expensive named varieties.

In describing the species in detail it will not be necessary to consider the subject from a strictly botanical point of view, as in writing as a gardener and to gardeners it is more convenient to note general resemblances in form, colour, and habit of growth than to inquire into the real affinity which often exists in the essential organs of the plants. It may be perhaps as well to select some well-known species as a type around which to group other species and varieties having the greatest general resemblance to it. The various groups are—first, *A. pulsatilla* section, containing amongst others *A. pulsatilla*, an alpine well marked by having the seeds ending in long feathery tails and having thick somewhat fleshy roots. Second, the *A. nemorosa* section, with seeds ovoid and tailless and the roots tuberous; examples, *A. nemorosa*, the common Wood Anemone, and the florists' varieties. Third, the *A. sylvestris* section, having more or less compressed tailless seeds and the roots a mass of small fibres; types, *A. sylvestris* and *narcissiflora*. Fourth section of *A. japonica*, consisting of that species and its varieties, easily

distinguished by their large Vine-like leaves and autumnal blooming. Fifth, the *A. Hepatica* section, proposed as a distinct genus by Dillwyn and very frequently spoken of as such in nurseries. Sixth, *Anemone thalictroides* and its double variety called *Thalictrum anemonoides* by Michaux. Both of these last sections were, however, classed as *Anemones* by Linnaeus, and this decision is, I believe, confirmed by the best modern authorities. I may here state that I shall only deal with such species and varieties as are likely to be of use in the decoration of our gardens, and are to be found at present in nurseries or private collections, although some may be still very rare.—G. GUTHRIE.

(To be continued.)



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Maxwell T. Masters, M.D., F.R.S., in the chair, the following candidates were unanimously elected Fellows of the Society—viz., Alfred Gray, Henry Benjamin May, F. W. Wood, J. J. Woods, C.E. The following letters of condolence to Her Majesty the Queen and reply was read to the meeting:—

“Royal Horticultural Society,
“South Kensington, S.W.
“April 12th, 1884.

“Lord Aberdare presents his humble duty to your Majesty, and begs on behalf of the Royal Horticultural Society to express their deep grief and heartfelt sympathy with your Majesty and the Royal Family on the death of H.R.H. the Duke of Albany; a Prince whose great gifts and noble qualities had stirred in them as in the whole nation a sense of respect and admiration, which deepened as they watched the development of his character, and marked his determination to walk in the footsteps of his illustrious father, and to use his high rank and influence as instruments for improving the condition and ennobling the lives of his fellow countrymen.”

In reply to the above the following was received:—

“Windsor Castle,
“April 15th, 1884.

“DEAR LORD ABERDARE—

“I am commanded by the Queen to ask you to thank the Council of the Royal Horticultural Society for their kind and touching address.

“The Queen is very sensible of the warm feeling shown by them for her sorrow, and is much gratified by the terms in which you have alluded to her son.

“Yours very truly,
“HENRY F. PONSONBY.”

— A CORRESPONDENT has sent us a remarkably fine truss of the beautiful TEA ROSE NIPHETOS, but the letter accompanying it has been inadvertently mislaid. We shall be obliged if the sender of this excellent example of culture will favour us with his name and address, as we wish to communicate with him.

— MR. J. H. KRELAGE, Haarlem, writes in reference to HYACINTH L'OBELISQUE, mentioned on page 284—“This very pretty variety was raised in Holland, probably by the late Mr. Hoogveen, a well-known grower at Haarlem. It was first offered in public sale as his seedling in 1873, and was thus bought by several of the principal bulb-growers, who considered it to be a first-class variety. But it is not abundant in collections.”

— MR. G. ABBEY, Paxton Park Gardens, St. Neots, writes regarding the WEATHER:—“Ten degrees of frost were registered here on Saturday morning (April 19th), and on the morning of the 20th 8° of frost. The only injury so far as can at present be determined is that the shoots of early Potatoes are blackened, but fruit-tree blossom and fruit do not seem at all injured, which may be due to the dryness of the atmosphere, the wind being very keen from the north-east.”

— A DAILY contemporary gives the following note of a REMARKABLE FROST ON THE CONTINENT:—A phenomenal wave of cold swept over part of Switzerland on Monday, 21st inst., without any premonitory warning, the thermometer falling many degrees below zero. The damage to agricultural interests is enormous, and at least one-third of the vintage has been destroyed. It is telegraphed from Macon that a disastrous frost has also devastated the Vines in the Saone Valley, and that the damage is estimated at many millions of francs. In the neighbourhood of London as much as 10° or 12° of frost have been experienced this week.

— JUST on going to press we learn with extreme regret of the death of MR. GEORGE RUDD, the well-known florist, who expired at Undercliffe, near Bradford, on the 17th inst., at the age of fifty-four.

— THE tenth annual Exhibition of the NEWPORT AND COUNTY HORTICULTURAL SOCIETY will be held on July 17th, and a Chrysanthemum Show in November. The prizes at the former are liberal in the leading classes, £12, £8, and £3 being offered for a collection of eight stove and greenhouse plants.

— It is to be feared that the cold and strong easterly winds have impaired the previous bright PROSPECTS OF THE FRUIT CROPS, Plums, Cherries, and Pears especially, which were in full blossom in the south. At Chiswick the splendid Pear trees have been pictures of beauty, but the blossoms are seriously bruised, appearing indeed as if seared, yet the embryo fruit is at present fresh. It is the same with Plums, but unless genial weather follows it is greatly to be feared that much of the fruit will vanish, as Mr. Barron truly observes it cannot in its present stage stand still for long, but must either swell or drop, and the weather just now does not encourage a steady growth.

— AT a GENERAL MEETING of the FELTHAM HORTICULTURAL SOCIETY, which embraces the parishes of Feltham, Bedfont, Hanworth, and Ashford, held on the 16th inst., it was agreed to hold the annual Exhibition of plants, flowers, fruits, vegetables, and table decorations on Wednesday, July 23rd.

— GARDENING APPOINTMENT.—Mr. William Prentice, lately gardener to Rev. S. Allen, D.D., Shouldham Hall, Norfolk, has been appointed gardener to R. Whitehead, Esq., Paddockhurst, Worth, Sussex.

— “M. S.” writes:—“I am glad to see that the CHIONODOXAS are beginning to receive a little attention. I have seen the new *C. sardiensis* in flower, and cannot distinguish it from *C. Luciliae* in some of its varied forms and markings. Whether it will prove distinct or not remains to be seen with mature bulbs. In its present state at any rate it includes *C. Luciliae*, and for that matter *C. Forbesi* also. *C. nana*, although the smallest and least useful as a garden plant owing to its washy-coloured flowers, is very floriferous, and lasts longer than the others, a recommendation which must not be overlooked.”

— THE same correspondent observes:—“A good instance of how the public are deceived by a name is given in the catalogue of a well-known continental nurseryman. Everyone knows the common MARSH MARIGOLD (*CALTHA PALUSTRIS*), as grown in our gardens, with its bright golden yellow flowers. A new one is sent out under the misleading name of *C. purpurascens*, and seeing that such a colour would be an acquisition people will no doubt be led to add it to their collections, although it differs from the common one only in its having slightly purple stems. The flowers are the same.”

— THE MARIANNE NORTH PICTURE GALLERY, opened to visitors to the Royal Gardens at Kew about two years ago, has been a source of considerable pleasure as well as sound instruction to those of the public who have cared to avail themselves of it. The building having been found too small to include a fair representation of the vegetation of the different countries, and the fact of the indefatigable Miss North having lately made a special visit to South Africa in quest of more subjects, it has been found necessary to add a new wing at the back of the old building, and communicating with it by an opening in the wall directly opposite the front entrance. In this are being arranged the Cape paintings, many of the plants in which are new or rare in our gardens. Considerable improvement is noticeable in the hanging of the pictures, each of them being framed separately, showing a broad black frame between instead of the narrow band in the old room. The paintings are exquisite, clear, well defined, and appear on the whole to have a superior finish, lacking nothing that goes to make a good picture, combined with what is of the greatest importance in this class of painting—a faithful representation of the plants and vegetation generally. Among the most prominent is a fine *Crinum Moorei*, *Aponogeton distachyon*, much stronger than we see it in this country; *Nymphaea scutifolia* and several *Nepenthes* very fine, a few Orchids; and one picture is given to a whole colony of Arums. Blue and white *Ipomaeas* are very prominent and quite a feature is the graceful arrangement of several vases of flowers. *Clianthuses*, *Senecios*, *Everlastings*, &c., *Watsonias*, *Sparaxis pendula*, and several *Babianas* are very fine, as also is a fine plate of *Disa grandiflora*, *Kniphofia Quartianiana*, and some Orchids. A cottage covered with *Bougainvillea* and *Roses*, to which is an entrance bounded on each side

with *Lavandula spica*, is extremely pretty, as also are several of the landscapes. We have much pleasure in announcing this new addition to one of the principal features to this far-famed establishment.

— AMONG the Rhododendrons in flower in the temperate house at Kew, the most noticeable is a fine specimen of that superb Himalayan species, *RHODODENDRON AUCKLANDII*. The trusses, which are borne on the summit of the branches, are very fine, and number about a dozen. Before opening they are a fine rose blush, but as they expand changing to pure ivory white. The individual flowers are very large and conspicuous. In the neighbourhood of Glasgow it is said to grow and flower freely in the open.

— AT the COTTAGERS' AND ARTISANS' FRUIT AND VEGETABLE SHOW, to be held by the Royal Horticultural Society on August 12th of the present year, unusually liberal prizes are to be offered, such indeed as have probably never been surpassed at any cottagers' show. Thirty-six classes are provided for all kinds of vegetables and small fruits, the principal class being that for a general collection of garden produce, not less than six kinds of fruits and twelve kinds of vegetables, for which six prizes are offered—namely, £5, £4, £3, £2, £1, and 10s. 6d. These prizes are for competition amongst the various local horticultural and cottage garden societies and allotment holders in the country. The exhibits will be confined to *bona fide* cottagers and artisans, but the classes are open to competitors in all parts of the kingdom. In the other classes the prizes range from £3 to 5s. For two Vegetable Marrows 15s. is the first prize—a remarkably liberal one, but it is not stated whether large or small fruits will be required. In the class for Lettuces 15s. is also offered, but the number of heads to be shown is not stated, apparently an oversight. In the majority of classes the first prize is 15s.; thus that sum is offered for three Cabbages, six Turnips, six Carrots, three Beets, three Cauliflowers, one Cucumber, six Tomatoes, one dish of Strawberries, one dish of Raspberries, nine Plums, and six Apricots. For Potatoes the first prizes are £1 for three varieties, nine tubers each, and 15s. for one variety of the same number of tubers.

— IT is asserted that in Paris no fewer than 30,000 women earn their living by the manufacture of ARTIFICIAL FLOWERS. The Rose is the test of proficiency which the workshops demand, whoever can counterfeit a Rose being supposed equal to the imitation of any flower whatever. In this, as in other branches of industry, there is usually a division of labour; the bud, the foliage, and the mounting being done by different persons. At present many flower-makers are out of work, owing in part to the competition of other countries, and in part to the fact that artificial flowers are not universally in fashion.

— THE Committee of the GARDENERS' ROYAL BENEVOLENT INSTITUTION have had under their consideration for some years past the question of augmenting the pensions by the sum of £4 each, but before this desirable object can be carried out they consider it necessary that the reserve fund should be raised to £20,000. For the last three years they have caused collecting cards to be issued among gardeners, nurserymen, and others interested in horticultural pursuits, and the result has been that the sum of £2400, including the "Arthur Veitch Memorial" fund has been subscribed. A further sum of £2250 is required before the Committee can recommend the proposed increase of the pensions. A gentleman, who for the present wishes his name withheld, has promised that if the sum of £1750 be raised before the end of the year he will give the munificent sum of £500 to complete the amount required. With a legacy of £500 and the sum of £150 at the bankers, only £1100 remains to be secured. Under these special circumstances the Committee take this opportunity of bringing the matter prominently before the subscribers, feeling assured that those who take an interest in the Institution will second, to the best of their ability, the exertions that are being made to alleviate the distress and minister to the comforts of old and deserving horticulturists. To the affluent and generous lovers of horticulture an appeal is made with confidence that it will be responded to, and gardeners are also appealed to in the hope that they will assist their poorer brethren. The Secretary will gratefully and thankfully acknowledge any contribution, no matter the amount, that may be sent to him at 14, Tavistock Row, London, W.C. He will also readily send forms to all who may apply for them with the object of aiding in this excellent work, which we commend earnestly to the attention of our readers. The sum of £1750 was distributed by the Institution in pensions last year.

— A CORRESPONDENT of "Vick's American Magazine" has the

following on *KALMIA LATIFOLIA*:—"Not only is this a most gorgeous affair when in bloom, but to witness a hillside dotted full of the trees when the ground is covered with snow and the sun shines brightly on part of the hill, and the rest is in the shadow, is something equally grand. I remember once standing on a knoll admiring such a scene, when the mercury was about zero, until my ears were about froze. It is, perhaps, the hardest wood we had in Pennsylvania, and I often wondered why it is not used for knife handles, &c."

— THE usual monthly meeting of the ROYAL METEOROLOGICAL SOCIETY was held on Wednesday evening, the 16th inst., at the Institution of Civil Engineers, 25, Great George Street, Mr. J. K. Laughton, M.A., F.R.A.S., Vice-President, in the chair. J. Y. Davidson and T. Wright were elected Fellows of the Society. The following papers were read:—1, "On the Origin and Course of the Squall which Capsized H.M.S. 'Eurydice' March 24th, 1878," by the Hon. Ralph Abercromby, F.R.Met.Soc. 2, "Waterspouts and their Formation," by Capt. J. W. C. Martyr. 3, "The Weather Forecasts for October, November, and December, 1883," by C. E. Peek, M.A., F.R.Met.Soc. This is a comparison of the weather indicated in the forecasts of the Meteorological Office with that actually experienced at Rousdon in Dorset. 4, "On Certain Effects which may have been Produced in the Atmosphere by Floating Particles of Volcanic Matter from the Eruptions of Krakatoa and Mount St. Augustin," by W. F. Stanley, F.R.Met.Soc. The author having obtained specimens of volcanic dust from Krakatoa, which was collected on board some vessels in the neighbourhood of the eruption, and having examined them under the microscope, is of opinion that such dust suspended in the atmosphere was quite capable of producing the recent remarkable sunrises and sunsets and other effects.

— THE first part of the "ILLUSTRATED DICTIONARY OF GARDENING" (170, Strand) is now to hand, and if it is a fair sample of the general character the work will be both a full and useful one when completed. The genera are arranged as in Paxton's and Johnson's Dictionaries, but brief descriptions are given with all the species named; and in the case of popular plants like *Achimenes* the best varieties are also described. Under each genus an outline of the culture and propagation is given, and many illustrations accompany the text. There is one remarkable defect, which in a popular dictionary is inexcusable—namely, neither the genera nor specific names are accentuated. Another misleading defect is that with the majority of the specific names the translation is given but in a few instances, apparently following "Johnson's Gardeners' Dictionary," some other character is given after the specific names, as in *Abroma angusta* (smooth-stalked) and *A. fastuosa* (prickly-stalked). Many synonyms are given, but the authorities are omitted. With these few exceptions the work appears to have been very carefully edited, the names and descriptions being accurate. The work is clearly printed, the names in bold type, the paper and engravings being also of good quality.

VIOLETS.

I HAVE read with interest the account "Viola" gives in your issue of Thursday, April 10th, on the successful frame culture of that winter favourite, the sweet-scented, ever-welcome Violet; but I should be still more pleased to be put in the way of a successful open-air treatment, or to be corroborated in an opinion to which I am reluctantly giving way, that the climate of North Lancashire is too rugged and cold to allow them to bloom in any profusion. Frames with me are not available, and having tried them in a lean-to orchard house in a 2-feet border against the wall, but totally without success, two seasons ago, I removed some of the crowns and placed them outside in a sheltered situation under a wall, open only to the south and west. They were planted in good leaf mould, and during the summer the exuberant runners were pulled off. When blossoming time came I looked in vain for satisfactory results, but even with the protection of bellglasses there were no blooms worth the gathering, and last season, although extremely mild, there was none.

The garden is situated on a gentle slope to the south, is well drained, and grows good kitchen produce and flowers. Should it be the cold damp of the climate, why should they not have flourished in the orchard house, the temperature ranging from 45° to 55° after Christmas? If any of your many correspondents can enlighten me I should be much obliged.—E. P.

NOTES ON ORCHIDS.

PRUNING *DENDROBIUM NOBILE*.—I am afraid some of your correspondents will think me rather discourteous in not replying to their questions before now, but I have been prevented seeing the Journal for a week or two. Some of your correspondents doubt my remarks about the young growths starting from the

base of the old pseudo-bulbs that had been taken away. What I call the old pseudo-bulbs are those that have bloomed, and as those that make an early growth bloom on that growth the following spring, it is from the base of these that the young growths start. Some of my plants that flowered early have now made growths from a foot to 18 inches long. These will have finished their growths in June, and will be well ripened by autumn when they are put to rest. Plants that bloom late, say May or June, have not time to make their growths early enough to get them ripened, hence they do not bloom till the growths are two years old. In this way they lose their foliage the next summer after the growths are made, and when in bloom have no foliage. With me all my early-flowering plants have foliage on the growths when in bloom as green as when growing in the summer. I send a growth about 3 feet long, but I have taken the blooms off, as I wanted them to send away. If the pseudo-bulbs are two years old before they bloom then they do not send up growths from their base when taken away, as there will then be some one-year-old growths on the plants, and from the base of the one-year-old pseudo-bulbs the young growths start. All who have seen my Dendrobiums are astonished at their vigour. I was talking to a gardener a few days ago who called to see me about cutting down the Dendrobium nobile, and he made the remark that he should have been afraid of killing his plants if he treated them as I do mine.—B.

[The pseudo-bulb sent is an exceedingly fine one. It is 2 feet 9 inches long, and to the tip of the leaves is 2 feet 11 inches long. The leaves are $1\frac{1}{2}$ inch in diameter, and the stem at the flowering part is 2 inches in circumference. We have never seen a more healthy and robust pseudo-bulb produced under any system of culture].

CALANTHE DISCOLOR.—This pretty species has been known in cultivation for over forty years, but has been rather scarce in England, though it appears to have been better known in Holland, whence the first plants sent to this country were obtained. The leaves are similar to but much smaller than *C. veratrifolia*; and the flowers, which are about an inch in diameter, are borne in a neat spike, have narrow deep purplish-brown sepals and petals, and a white three-lobed lip with the central lobe deeply cut. In reference to this plant Messrs. Hooper and Co., Covent Garden, write as follows:—



Fig. 78.—*Calanthe discolor*.

and is presumably nearly or quite hardy. The sepals are rich brown, and the labellum white strongly stained with crimson. A small block carefully prepared from a native drawing is sent herewith."

LISSOCHILUS GIGANTEUS AT HOME.—In a work recently published entitled "The River Congo from its Mouth to Bôlôbô," by Mr. H. H. Johnson, F.Z.S., occurs an interesting reference to *Lissochilus giganteus*, which is here reproduced:—"A splendid Orchid that shoots up often to the height of 6 feet from the ground, bearing such a head of red-mauve golden-centred blossoms as scarcely any flower in the world can equal for beauty and delicacy of form. These Orchids, with their light green spear-like leaves and their tall swaying flower stalks, grow in groups of forty or fifty together, often reflected in the shallow pools of stagnant water round their bases, and filling the foreground of the high purple-green forest with a blaze of tender peach-like colour, upon which no European could gaze unmoved."

ORCHID SALES.—At Messrs. Protheroe & Morris's rooms in Cheapside on Friday last a large number of imported plants of *Cattleya Eldorado*, *Cypripedium barbatum*, *Saccolabium giganteum*, *Oncidium cucullatum*, *Epidendrum prismatocarpum*, and other Orchids were offered for sale in good condition, but mostly realised moderate prices. In addition, several handsome varie-

ties of *Odontoglossum Alexandræ* and *Wilckeanum* were included, and for these the competition was very keen. One beautiful hybrid of the *O. Alexandræ* type or approaching *O. Wilckeanum*, with yellow ground flowers spotted with bright red, was sold for 19 guineas. Another of the *O. Ruckerianum* type, exceedingly beautiful and one of the most distinct varieties yet produced, with sepals deep purplish-crimson on the back, the whole flower also flushed with the same colour, the sepals and petals thickly dotted with rich crimson on the upper surface, and having a well-defined yellow margin. This magnificent variety, which was the centre of attraction, was sold for 21 guineas. A striking form of *O. Wilckeanum* with ivory-white flowers and very large spots realised $7\frac{1}{2}$ guineas, and others proportionate prices. Some of the less important plants were sold at very moderate prices; for instance, a good *Cypripedium niveum* and *Oncidium concolor* were sold for 15s. the pair.

ROYAL HORTICULTURAL SOCIETY.

APRIL 22ND.

THOUGH confined to a limited space in consequence of the National Auricula Society's Show, the groups of plants and flowers were very attractive, especially the Roses, Rhododendrons, and Daffodils. Probably, however, the most generally admired group was the grand collection of Mignonette from Mr. Warren, which was of a quality rarely seen at exhibitions. Several new plants and Orchids imparted additional interest to the meeting, which was extremely well attended by visitors.

FRUIT COMMITTEE.—The duties of this Committee were exceedingly light, and limited to the consideration of a few Apples. Mr. R. Gilbert, Burghley Gardens, Stamford, sent specimen of a Cabbage Broccoli, with compact white heads, which is to be tried at Chiswick. Mr. R. Dean, gardener to G. Leveson Gower, Esq., Titsey Park, Surrey, had a collection of nine dishes of Apples, comprising Reinette du Canada, Cox's Orange Pippin, Braddick's Nonpareil, Brickley Seedling, Court Pendu Plat, Winter Queening, Winter Pearmain, Sturmer Pippin, and Cornish Aromatic in excellent condition. A vote of thanks was accorded. Mr. Divers, Wierton Gardens, near Maidstone, showed a collection of twelve dishes of Apples in good condition, and a bronze medal was awarded for them. First class certificate was awarded for

Apple High Canons (Mr. Thrower, High Canons, Shenley, Herts).—A solid heavy Apple of good flavour, and evidently an excellent keeper. The fruits sent were 2 to 3 inches wide, slightly angular, with a deep open eye and short stalk. Its colour is a clean yellow, with a few streaks of crimson on the side to the sun.

FLORAL COMMITTEE.—Section A.—Mr. E. Hill in the chair. Present:—Messrs. J. O'Brien, H. Ballantyne, H. Williams, H. Herbst, J. Woodbridge, F. R. Kinghorn, and Rev. G. Henslow. Section B.—Mr. Shirley Hibberd in the chair. Present:—Messrs. W. B. Kellock, H. Bennett, G. F. Wilson, W. Bealby, J. Child, D. C. Lathbury, G. Duffield, H. Cannell, H. Eckford, and J. T. D. Llewelyn. Messrs. Veitch & Sons, Chelsea, exhibited a choice collection of new plants, including several good Azaleas and Amaryllises. Six boxes of *Narcissus bicolor* Empress and *lorifolius* Emperor were handsome. Mr. W. Warren, Worton Gardens, Isleworth, exhibited a group of extraordinarily fine Mignonette of the variety *pyramidalis grandiflora*. Seven or eight plants were placed in each pot, and formed dense compact specimens 8 or 9 inches high, with heads of flowers $1\frac{1}{2}$ or $1\frac{3}{4}$ inch in diameter, and 3 to 5 inches high, with prominent reddish anthers and white petals. The fragrance was extremely powerful, and altogether it was one of the finest samples of Mignonette that has ever been shown. A bronze Banksian medal was awarded for this.

Messrs. J. Carter & Co., High Holborn, contributed a group of Cinerarias comprising a great diversity of colours, both self and parti-coloured flowers being of good form and size. The strain is evidently a very good one, the colours being rich and decided, delicate, or pure white. They formed a bright group. A bronze medal was awarded. Mr. J. Geggie, Bury, Lancashire, sent a pretty group of seedling Primulas, varieties from P. Sieboldi representing diverse shades of rose, purple, and lilac. Some were prettily fimbriated on the margin of the petals, and all were flowering profusely. Sir Trevor Lawrence, Bart., Burford Lodge, Dorking, sent several Orchids, three of which were certificated. The fourth was a good specimen of *Cypripedium naviu* with large flowers densely dotted with small purple dots. Mr. G. Stevens, Putney, showed a group of Abutilons, including several good varieties, Lustrous with dark scarlet flowers being very noticeable; Miss Nicholls, pink, and Princess of Wales, deep rose, were the best. Mr. R. Aldous, gardener to G. Heriot, Esq., Lilford House, Cholmondeley Park, Highgate, had a fine plant of *Phalænopsis casta*, with handsome flowers $3\frac{1}{2}$ inches across, the petals rounded, the lip marked with crimson at the base. A vote of thanks was accorded for it.

Mr. B. S. Williams, Upper Holloway, exhibited a group of new plants, including several new *Sarracenias*, a wonderfully strong *Epidendrum bicornutum*, with six fine growths and two spikes of flowers. An elegant cut-leaved *Grevillia* named *Manglesi* was included, and a plant of *Cœlogyne Parishii* with yellowish green flowers and a black-spotted lip. For the *Sarracenias*, which were in fine condition, a vote of thanks was accorded. A vote of thanks was accorded to Sir C. W. Strickland, Bart., Hildenley, Malton, for a healthy plant of *Cattleya citrina*, growing on cork bark and bearing two fine flowers. De Barry Crawshaw, Esq., Rosefield, Sevenoaks, was accorded a vote of thanks for a plant of *Odontoglossum hebraicum* with large flowers richly spotted with red, and a plant of *Cypripedium Robelinii*, something like *C. lævigatum*, but the flowers were not fully expanded. Mr. Wilson, gardener to H. M. Pollett, Esq., Fernside, Bickley, sent plants of *Odontoglossum Stuartianum* with fine flowers, yellow barred, and spotted with chocolate. *O. Ruckerianum* insigne is a charming variety, spotted with crimson and edged with yellow. *O. polyanthum* was also good with large clearly coloured flowers. Mr. A. J. Sanders, gardener to Viscountess Chewton, Bookham Lodge, Cobham, sent two plants of a double purple

Cineraria named Rosy Morn. Mr. E. Weatherill, North Finchley, exhibited four seedling Pelargoniums with large handsome flowers. They were of the decorative type, one named Alice having large flowers, white stained with crimson. Messrs. Cutbush & Son, Highgate, sent a plant of the pale purple-coloured Japanese Daphne named Gwenka. Mr. Black, Fulwood Park, Preston, was awarded a vote of thanks for a seedling Adiantum of the gracillimum type, very elegant and compact in habit. Votes of thanks and a cultural commendation were awarded to Mr. Slogrove, gardener to Mrs. Crawford, Gratton Cottage, Reigate, for a head of a fine single Zonal Pelargonium named Mrs. Crawford, with very large flowers, and for a bunch of flowers of Chrysanthemums.

First-class certificates were awarded for the following plants.

Angræcum fastuosum (Sir Trevor Lawrence).—A pretty dwarf species, about 3 inches high, with elliptical leaves 2 inches long, $1\frac{1}{2}$ across, with two spikes of three flowers, one from each side of the stem, the sepals and petals pure white, lanceolate, about 1 inch long, the lip being similar in form and the white spurs 2 to 3 inches long.

Odontoglossum cinnamomeum (Sir Trevor Lawrence).—A distinct variety, with flowers $1\frac{1}{2}$ inch across, yellow spotted, and barred with rich brown; the margins of sepals and petals slightly undulated.

Dendrobium Harveyanum (Sir Trevor Lawrence).—One of the racemose group, with neat golden-yellow flowers, the petals and lip deeply fringed, the sepals narrow, but without the fringe.

Odontoglossum vexillarium splendens (Williams).—One of the finest coloured varieties that has yet been obtained, the flowers large and of a rich rose tint, running right through the flower, except a white patch at the base. The plant shown was bearing three spikes of five flowers each.

Primula Sieboldi Brilliant (Geggie).—Rich rosy crimson, well-formed flowers in dense heads.

Primula Sieboldi Purity (Geggie).—Flowers of good size, pure white, in trusses of seven to twelve.

Syringa vulgaris fl.-pl. Lemoinei (V. Lemoine, Nancy).—A pretty variety, with neat double flowers of a pale mauve tint, in dense heads.

Tea Rose, Etendard de Jeanne d'Arc (Bennett).—Bloom of moderate size, very full and extremely beautiful in the bud stage; white, with a very faint bluish tint. Free, and of good habit. This was raised by M. Jules Margottin, and has been found to be a very free and early-flowering variety.

Highly attractive features of the Show were the fine collections of Roses exhibited respectively by Messrs. H. Lane & Son, nurserymen, Berkhamstead, and Messrs. Paul & Son, the Old Nurseries, Cheshunt. Messrs. Lane's group was composed of remarkably handsome and well-grown plants, the following being especially noticeable:—Celine Forestier; Glory of Waltham, a fine plant, bearing upwards of twenty blooms; Docteur Andry; Jeanne d'Arc, bearing at least thirty buds; and Marquise de Castellane. The same firm also showed a very fine and varied collection of Rhododendrons, the plants being dwarf, bushy and well covered with flower heads. A silver-gilt Banksian medal was awarded for them. The Roses shown by Messrs. Paul & Son were magnificent, the plants being, as is usual with such exhibits from this firm, very fine and well grown, and they certainly formed one of the most pleasing groups in the conservatory. The following were the most conspicuous varieties, being in very fine condition:—Comtesse Riza de Parc, Countess of Rosebery, Duke of Teck, Innocenti Pirola, Madame de Montcheauvean, Madame Eugène Verdier, Madame Victor Verdier, Madame Villermoz, Perfection de Montplaisir and Souvenir d'un Ami; many of the plants having upwards of twenty-five blooms. A silver-gilt Banksian medal was awarded for them.

Another extremely pretty and effective stand was that of Mr. Thos. Ware, Hale Nurseries, Tottenham, who sent a mixed collection of spring flowers, consisting of Daffodils, Irises, Freesia refracta alba, Primula denticulata, P. rosea, P. Sieboldi, and Fritillarias. These, being tastefully arranged, looked particularly bright and attractive.

Messrs. Barr & Son, King Street, Covent Garden, were represented by a very large and fine stand of Daffodils, which formed one of the most striking features of the miscellaneous exhibits. Conspicuous amongst them were the fine flowers of Narcissus bicolor maximus, Incomparabilis Leedsii, Barri conspicuus, bicolor Empress, Poeticus ornatus, and many others. A bank of flowers of Amaryllises, Anemones, Fritillarias and Triteleias considerably heightened the effect, and a silver-gilt Banksian medal was awarded.

A vote of thanks was accorded to Mr. Eckford for some handsome blooms of Pansy Crimson Gem, a richly coloured variety. From the Society's garden at Chiswick a large group of Primulas and Auriculas was contributed, which included some well-grown plants.

THE TURF RITTER.

PERMIT me to say a few words on a handy tool which will be found invaluable by those engaged in cutting turf for lawns. One man can cut as many turves with ease with this implement as three men can with the ordinary edging-iron. I had mine made of an old gig or carriage shaft reduced to the following dimensions:—Length, 5 feet 6 inches; girth at thick end, $5\frac{1}{2}$ inches, with a knife 9 inches from the point, facing the point. The knife is 5 or 6 inches long, with four holes in it for adjusting it to any depth. Any stiff blade will do, such as an old table knife. The shaft has a narrow hole the shape of the blade through it, with a narrow sheet-iron case put in it as a support to hinder the knife from cutting or splitting it. Then a pinhole is drilled through the shaft and plate, the knife is put in and pinned, the instrument is finished, and in good land you can cut as fast as you can walk by pushing it forward.—GEO. MURRAY, *West Ashby Manor Gardens, Porceastle.*

TOMATO SAUCE.

IN response to "D., Deal's," inquiry for a recipe of a really good Tomato sauce that will keep, I gladly give particulars of the excellent sauce made last autumn by Mrs. Luckhurst, which we have now in daily use, and which I have every reason to suppose will keep good for a couple of years; at any rate it may certainly be relied on from one autumn to

another. Badly made sauce is soon spoiled, and I have heard it remarked, "What a pity so delicious a sauce would not keep," and this, too, with all due gravity, as though the matter were beyond dispute. Surely I am a more privileged being than I supposed! for my better half not only makes the best Tomato sauce I have ever tasted, but equally good chutney, pickles, jam, and wine, all keeping good for a long time, and the wine gaining in excellence by keeping—a sure indication of its high quality.

Care is taken to select sound and ripe Tomatoes, which are put in an oven in a pan and sufficiently baked to extract the watery juice of which they contain so much. They are then strained and the juice thrown away. To a gallon of the pulp is added a quart of the best vinegar, a tablespoonful of mixed spice, cayenne pepper at discretion—some palates like more or less of it than others—four large Apples peeled and sliced, a dozen large Shallots, less or more at discretion, according to taste. It is then boiled gently for two hours and stirred frequently and thoroughly. It is then passed through a sieve, salt is added freely, the best guide as to quantity being individual taste; it is again put in the saucepan with a pint more vinegar, boiled briskly for ten minutes, and is then ready for bottling. See that the bottles are quite dry before putting in the sauce; use new tight-fitting corks, and seal the tops as they are put in. The size of the bottles is immaterial, the sauce keeping equally well in quantities of half a pint or two or three pints, nor does the sauce spoil when the larger bottles are opened if the cork is put in again carefully.

A careless person will fail in this, as in most other things. To the careful it is almost superfluous to say that close attention to each detail of this simple recipe renders success a certainty.—EDWARD LUCKHURST.

IN reply to the request of "D., Deal," (page 303) for a recipe of Tomato sauce, I have much pleasure in forwarding the enclosed, that will keep two years. I have also sent by parcels post a sample that was made in October, 1883.

Let Tomatoes be quite ripe; take out the green stems, then wipe them and put them on earthen dishes, and place in a warm oven; let them remain until perfectly soft; skin them and rub them through a sieve, putting the seeds away. Then to every two pounds weight of Tomatoes add one quart of white wine vinegar, one dozen capsicums, a quarter of a pound of garlic, and a quarter of a pound of Shallots, peel clean and slice as thin as possible; to this add one ounce of white pepper in powder, and salt to your taste. Boil all together till it becomes thick as cream, stirring it and skimming off the froth. When the Garlic is quite soft rub the whole through a sieve with a wooden spoon, then boil it over again, and if too thick add a little vinegar, and if not spiced you may add a little more white or cayenne pepper. Keep it in a cool dry place after it is bottled and well corked.—F. F., *Herts.*

[The sample sent is excellent, the different ingredients being agreeably blended; but we do not think it will "keep" long, indeed the greater portion of it vanished on first being placed on our table. It is, however, in a perfect state of preservation, and if allowed would apparently keep for any length of time.]

ORCHIDS AT PENTLAND HOUSE, LEE.

NEARLY every villa, suburban, and country garden can now boast of a large or small collection of these singularly beautiful plants. It is, however, not so much the desire of those who have limited space to acquire a large as a small and choice collection. In some instances cool Orchids, such as the many excellent forms of *Odontoglossums*, &c., that do not require so high a temperature in which to grow and flower them successfully, are sought after the most. Others, again, include in their small collections a few of the choicer species of *Cattleyas*, *Oncidium*s, *Dendrobium*s, and *Phalænopsis*, in addition to *Odontoglossums*. And who forming a collection would fail to include the latter? A similar collection to the above is being formed by K. Whyte, Esq., Pentland House, Lee. The collection of *Odontoglossums*, growing in a cool span-roof house, embraces some hundreds of such good species as *O. Alexandræ* (of which I saw at the time of my visit many excellent varieties in flower), *O. Rossi majus*, *O. Pescatorei*, and *O. nebulosum*. In the same house, too, I noted *Oncidium cucullatum*, very good; *O. sarcodes*, and *O. Marshallianum* carrying a fine raceme of flowers. In addition to these were well-grown and flowering plants of *Ada aurantiaca*, *Dendrobium Jamesianum*, *Sophranitis grandiflora*, *Cattleya citrina*, the latter thriving remarkably well on blocks of wood, and showing flower buds freely; *Masdevallia ignea*, and fine specimens of *Cælogyne cristata*. The whole of the plants in this house were in the best possible health, although from necessity closely packed together. Mr. Reece, the energetic gardener at Pentland House, is a thorough advocate for giving plenty of air and dispensing with fire heat as much as possible, and the sturdy appearance of the plants certainly testify to the soundness of his practice.

In another large span-roof house devoted to Orchids and specimen stove plants there were several good varieties in flower of *Cattleya Trianae* and *Mendelli*, *Vanda tricolor*, *Dendrobium Wardianum*, *Farmeri*, and *aggregatum*, also *Phalænopsis Schilleriana*, all in excellent health, and the various species true to name and in good variety. We have only enumerated the principal ones in flower at the time of our visit a few days ago as typical of the choice collection now in course of formation there. A system of "weeding out" the inferior varieties is constantly practised, and it is hoped by so doing to obtain the best possible forms of this interesting class of plants. It will not be out of place to add that not only are Orchids a special feature here, but also a collection of

choice stove and greenhouse plants, with which Mr. Reece won the silver cup presented to those who win the greatest number of prizes at the local show.—SUBURBANIST.

EARLY AURICULA SHOWS.

THE *Ipswich Journal* has recently been publishing extracts from its early numbers. I forward one, which may have some interest for Auricula growers. If there any earlier record of an Auricula show?

"1744. The annual Show of Ariculas (*sic*) (The Prize to be a Half-pint Silver Mug) will be at the House of Samuel Healey at the Half

contrasts strongly with the light central stripe. It is a handsome effective variety, and is especially useful for associating with the dark-coloured forms of the Leopoldi type.

NATIONAL AURICULA SOCIETY.

SOUTHERN SECTION.—APRIL 22ND.

IN the opinion of some of the most experienced Auricula growers this Exhibition was the best that has been yet held, both in numbers and quality. It is true that some of the southern collections showed the signs of age rather too markedly, and on the other hand several of the northern exhibits

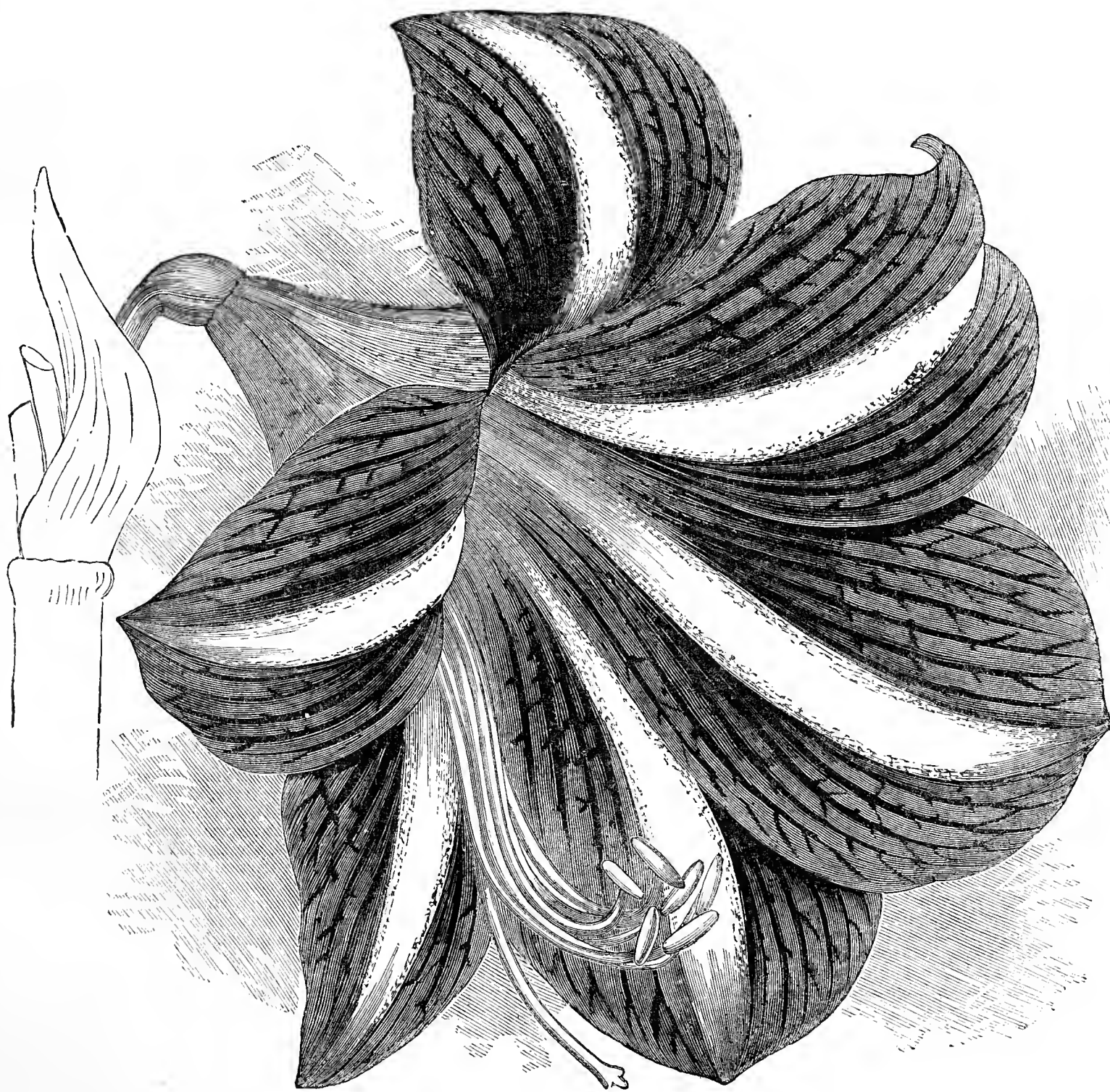


Fig. 79.—AMARYLLIS ALCYONE.

Moon in Bury St. Edmunds, on Thursday the 19th of this instant, April, where all Lovers of Flowers are desired to dine with the Stewards at one o'clock.

LAWRENCE WRIGHT, }
THOMAS MONES, } Stewards."

—DUCKWING.

AMARYLLIS ALCYONE.

THE woodcut (fig. 79), shows another type of Amaryllis from Messrs. Veitch's collection, which like those previously given is representative of a group of varieties similarly marked, but differing in size and form of flower and depth of colour. The flower is well proportioned; the petals are broad, rounded, and rich, but delicate crimson in colour, which

were correspondingly undeveloped, in a few cases the flowers were scarcely expanded. All were, however, distinguished by a most vigorous health, which in a few extreme instances almost verged on coarseness, but with these exceptions the leading collections of flowers were of a most refined character, clean, the colours and paste well defined, and the general symmetry and substance most satisfactory—a convincing proof of the increasing interest taken in Auriculas was afforded by the increased number of exhibitors, chiefly amateurs, who contributed plants that had evidently been carefully tended, but which could not take rank with the productions of the veterans in Auricula culture.

The Show was held in the conservatory at South Kensington, and tables on both sides for one-half the length were fully occupied with the plants entered, the other portion of the building being filled with the groups and miscellaneous plants shown before the Floral Committee of the Royal Horticultural Society. These united attractions induced a large number of

visitors to assemble, and during the afternoon the conservatory was crowded with Fellows and visitors.

The most important class in the Show, and one in which the greatest interest centred, was that for twelve dissimilar Auriculas, as in addition to the liberal prizes provided by the Society, the Veitch Memorial medal and £5 was offered for the best collection from gentlemen's gardeners or amateurs. It was, however, provided that the usual prizes should be awarded to the unsuccessful exhibitors in the order of their merit. Six collections were entered, and the much-coveted medal was, after careful and lengthy consideration, awarded to the Rev. F. D. Horner, Lowfields, Burton-in-Lonsdale, Carnforth, for handsome specimens, fresh, healthy, and with most refined flowers. He well deserved his success, although Mr. J. Douglas proved a formidable opponent, and had his flowers been a little younger and fresher it is probable that Mr. Horner would not have gained his position so easily. The varieties represented were as follows:—Back row: Mrs. Douglas (Simonite), F. D. Horner (Simonite), Mars (Horner). Second row: Magpie (Horner), Colonel Taylor (Leigh), Mrs. Horner (Turner). Third row: Heroine (Horner), John Simonite (Walker), Monarch (Horner). Fourth row: Moonlight (Horner), G. Lightbody (Headley), and Miranda (Horner).

Following this, Mr. J. Douglas, gardener to F. Whitbourne, Esq., Great Gearies, Ilford, was adjudged the first position with handsome strong plants bearing fine heads of well-finished flowers. The varieties were:—Back row: George Lightbody (Headley), C. J. Perry (Turner), Jumbo (Douglas). Second row: Pizarro (Campbell), Frank Simonite (Simonite), Prince of Greens (Trail). Third row: Lancashire Hero (Lancashire), Blackbird (Spalding), Smiling Beauty (Heap). Fourth row: Conservative (Douglas), Colonel Taylor (Leigh), and Marmion (Douglas). These were very handsome, C. J. Perry having a truss of eleven and Smiling Beauty ten pips. Mr. E. Pohlman, Halifax, was second with good examples of Ringdove (Horner), Prince of Greens (Trail), and C. J. Perry (Turner) amongst others. Third Mr. C. Turner, Slough; and fourth Mr. W. Brockbank, Didsbury, Manchester.

For six dissimilar varieties there were five collections. The Rev. F. D. Horner secured the first honours with F. D. Horner (Simonite), Enchantress (Horner), Heroine (Horner), Luna (Horner), G. Lightbody (Horner), and Monarch (Horner). A pretty collection. Mr. J. Douglas was a very close second with sturdy plants. Mr. E. Pohlman was third; Mr. Brockbank fourth; Mr. Bateman, Kent's Bank, Grange-over-Sands, fifth; and Mr. W. Rowan, 36, Manor Street, Clapham, sixth. These were all close in merit, and each collection included good plants.

The collections of four varieties were good as usual. Mr. B. Simonite, Sheffield, took the lead with excellent plants of Heather Bell (Simonite), Samuel Barton (Simonite), Merlin (Simonite), and Acme (Reed). Mr. T. C. Henwood, Hamilton Road, Earley, Reading, was a close second with Beauty (Trail), Dr. Horner (Read), Gipsy (Mellor), and Prince of Greens (Trail). Mr. E. Shaw, Street Fold, Meston, Manchester, was third; the Rev. E. C. Fellowes, Wimpole Rectory, Royston, fourth; Mr. W. Bolton, Warrington, fifth; and T. H. Welton, Esq., Rectory Grove House, Clapham, sixth. This was a particularly strong class, no less than nine collections being staged, and so nearly equal were most of them that the Judges had no easy task in making the awards.

For pairs of dissimilar varieties the competition was keen. Mr. E. Henwood was first with G. Lightbody (Headley), and Mrs. Douglas (Simonite); Mr. Shaw was second with G. Lightbody (Headley), and C. J. Perry (Turner); Mr. Phillips third, Rev. Fellowes fourth, Mr. Simonite fifth, and Mr. Bolton sixth.

SINGLE SPECIMENS.—A very large number of plants were entered in the four classes for single specimens, thirty to fifty or more in each, and amongst so large number it was evidently not an easy matter to select the most meritorious. But there was more delay than the case warranted, and so much confusion occurred in placing the prize cards that mistakes were unavoidable. The following list is, however, as nearly accurate as possible under the circumstances:—

Green-edge.—Rev. F. D. Horner was first, second, and fourth with Prince of Greens (Trail), F. D. Horner (Simonite), and Kestrel (Horner); Mr. E. Pohlman third, fifth, and sixth, Colonel Taylor (Leigh) and Prince of Greens (Trail); Mr. J. Douglas seventh and eighth with Prince of Greens, and Rev. F. D. Horner (Simonite). *Grey-edged.*—Mr. W. Brockbank was first and sixth, G. Lightbody (Headley), Dr. Horner (Read); Mr. E. Shaw second and eighth, G. Lightbody (Headley) and Alexander Meiklejohn (Kaye); Rev. F. D. Horner third, fourth, fifth, and seventh, Irreproachable (Horner), Thetis (Horner), and G. Lightbody (Headley). *White-edged.*—Mr. Pohlman was first with Acme (Read); Rev. F. D. Horner second and fourth with Acme (Read) and Beeswing (Horner); Mr. J. Douglas third, fifth, seventh, and eighth with Conservative (Douglas) and Acme (Read). *Sels.*—The Rev. F. D. Horner was first, second, third, and fourth with Heroine (Horner), Kathleen (Horner), Blackbird (Horner); Mr. J. Douglas fifth and sixth with Topsy (Kaye) and a seedling; Mr. C. Turner seventh and eighth.

The class for fifty plants invariably makes a good display, and though only two collections were staged they comprised a hundred plants which it would not have been easy to surpass. Mr. J. Douglas won chief honours in this class with a magnificent collection, including some splendidly flowered plants with large trusses, many with ten or twelve pips. The foliage was extremely vigorous, and the general condition of the plants indicated most liberal treatment. Some of the most notable were Smiling Beauty (Heap), thirteen pips; Vulcan (Sims), twelve pips; Beauty (Trail), nine enormous pips; Frank (Simonite), twelve beautiful pips; C. J. Perry (Turner), twelve large even pips; Lancashire Hero (Lancashire), eleven pips; and many others might be named of similar merit. Mr. C. Turner took the second position with beautiful plants but slightly inferior to the Essex collection, and, like those, they were all in remarkably vigorous condition.

ALPINE AURICULAS.—A pretty display of these was provided, though the competition was not so keen as in the Show variety classes. For twelve dissimilar varieties Mr. C. Turner was adjudged the first prize with vigorous plants of Cygnet, Gem, Luna, Murillo, Purple Gem, Garnet, Comet, Miss Llewelyn, Aurora, Unique, and Mrs. Thompson, most of them being Slough seedlings. Mr. J. Douglas was a close second, staging fresh and freely flowered specimens of Mrs. Llewelyn (Turner), Mrs. Meiklejohn (Meiklejohn), Diadem (Gorton), Ada Hardwidge (Douglas), Dolly Varden (Turner),

Miss Cope (Douglas), and several seedlings. In the class for six plants Mr. Turner was also the principal prizetaker, having good plants of Troubadour, Lavinia, Comet, Rainbow, Bayard, and a seedling. Messrs. Douglas and the Rev. E. L. Fellowes followed.

SINGLE SPECIMEN.—These were fairly represented, but not in large numbers. *Gold Centre.*—Mr. C. Turner was first, third, fifth, and sixth with a seedling and Unique. Mr. J. Douglas was second and fourth with Placida, Sensation (Turner). *White or Cream Centre.*—Mr. C. Turner was first and second with Rainbow and Princess of Wales, and Mr. J. Douglas third, fourth, fifth, and sixth with Queen Victoria (Turner).

The premier Auricula was a plant of Trail's Prince of Greens in Mr. Pohlman's second-prize collection of twelve. The truss contained eight even beautifully formed pips, which was greatly admired by the growers, and the most experienced were of opinion that a finer plant had never been shown.

SEEDLING AURICULAS.—Prizes were offered in each of the sections of Auriculas for the best seedlings, and the numbers entered were even greater than usual. The following awards were made:—*Green-edged.*—First and second the Rev. F. D. Horner. *Grey-edged.*—First Rev. F. D. Horner; second Mr. J. Douglas. *White-edged.*—First and second Rev. F. D. Horner. *Sels.*—First and second Rev. F. D. Horner. *Alpine Gold Centres.*—First Mr. C. Turner; second Mr. J. Douglas. *White or Cream Centre.*—First and second Mr. C. Turner. *Polyanthuses, Black Ground.*—First and second Mr. Brockbank, and the same exhibitor was first in the Red Ground class. There was so much delay in placing the cards to these plants that we are unable to give the names of the varieties honoured.

POLYANTHUSES.—A comparatively small space was occupied by these plants, but they were profusely flowered; their elegant gold-laced flowers being very attractive in comparison with the rich green vigorous foliage. Mr. Brockbank was first with six specimens, having well-grown examples of Exile (Crownshaw), Prince Regent (Cox), Black Drummond (Brockbank), President (Hitton), and seedlings. Mr. Barlow followed with similar plants, Mr. Douglas was third, and Mr. R. Dean fourth. Mr. Barlow staged the best three plants, which comprised the varieties Cheshire Favourite (Sanders), Exile (Crownshaw), and John Bright (Barlow). The single specimens were not shown in large numbers. Mr. W. Brockbank was first, second, fourth, fifth, and sixth with John o'Gaunt (Brockbank) and seedlings; and the Rev. F. D. Horner was third with Cheshire Favourite (Sanders).

EXTRA CLASSES.—A class was provided for twelve dissimilar Fancy Auriculas, and in it two pretty collections were staged. Mr. J. Douglas was first with good plants of Lord Tennyson, Cygnet, Snowdon's Knight, Khartoum, Luilette, and a seedling. Some of these were very prettily marked, yellow being the predominating tint. Mr. S. Barlow, Stakehill House, Manchester, was second with healthy but smaller plants of good varieties. Mr. Douglas also had the finest twelve Fancy Polyanthuses, flowering most freely, and was followed by Mr. R. Dean with much smaller specimens.

Seven groups of Primulas in the class for twelve plants, six to be distinct species, and these formed a very interesting portion of the Exhibition. J. T. D. Llewelyn, Esq., Penllergare, Swansea, was adjudged first honours for a superb collection of well-grown floriferous plants, amongst the best being some pretty varieties of P. Sieboldi, P. sikkimensis, P. verticillata var. sinensis, P. japonica, and P. rosea. That charmingly free species P. obconica had over twelve fine trusses, and P. pulcherrima was similarly good. Mr. Douglas took the next position with P. Sieboldi and its varieties, very beautiful. P. obconica was also well shown in this collection. Messrs. Paul & Son, Cheshunt, followed, having smaller plants in very large pots, the surface of the soil being covered with large pieces of spar. P. denticulata purpurea, P. viscosa, P. Munroi, and P. farinosa.

The Luncheon.—Shortly after 2 P.M. the members of the Society and their friends, to the number of thirty or forty, assembled in one of the galleries and partook of luncheon. J. T. D. Llewelyn, Esq., presided, Mr. Shirley Hibberd taking the vice chair. The usual toasts were duly honoured, Mr. Gorton responding for the Judges, the Rev. F. D. Horner for the exhibitors, and Mr. Shirley Hibberd for the horticultural press. A hearty response to the toast of the health of the Chairman brought that portion of the proceedings to a close, but Mr. Llewelyn stated that before the meeting dispersed Mr. Dodwell wished to make a few remarks upon a subject affecting him, and desired the attention of the members.

Mr. Dodwell said he had to draw attention to a statement in the *Journal of Horticulture* of February 14th, by a writer who assumes the signature of "Fair Play," and that statement was that he (the speaker) must be considered quite a nurseryman. He was sorry from the bottom of his heart that he had to bring the question before the notice of their worthy Chairman, but as the statement had appeared in public he had no alternative. The only favour he could ask at the hands of those present was that they would determine the question altogether apart from the manner of its having been made, the persons making it, or the person inculpated, and to determine it solely upon its own merits. If in their judgment he had lost status as an amateur he declared he would make whatever recompense in his power for the sins he had committed in showing as an amateur. He submitted he was that day, as he ever had been, an amateur, saving only in the brief episode of his life when he was at Bradshaw Garden, Manchester, twenty-five years ago. He urged that the line of demarcation between an amateur and a dealer was clear and distinct in the fact that a dealer not only reared, but bought and sold plants as a means of profit, whilst an amateur does not obtain a solitary iota—not one fraction—or the lowest mite of the realm as the result of his labours. The dealer goes in primarily for profit, the amateur does not put that in the forefront; that was an accident that came in afterwards. This equally governed other pursuits where the terms "amateur" and "professional" come in. He had never made a solitary penny in all his life, either as the result of the work of his pen, or from the productions of his garden. All had been in one sense constant loss, and in another way a gain, for his sympathies had been enlarged, and he was made a better man than he was. In the latter sense it had been a great advantage to him; but from a pecuniary point of view, as the eminent accountants, Messrs. Quilter, Ball & Co., could prove (and which proof he was ready, if necessary, to afford) he had never made a penny. He left the matter in their hands. He well knew from whom the anonymous communications emanated. The writers had been invited, but

were conspicuous by their absence. He had referred to them in the plural, but they could be counted on the little finger. He knew all about them. They had disturbed friends of the Society, and the latter had lost support, but he hoped the outcome of the matter would be that their support would be regained.

The question was afterwards referred to the Committee of the Society to consider, the Chairman urging that he knew of no single instance in which the Society had been injured by Mr. Dodwell showing as he had done.

Mr. Hibberd thought that Mr. Dodwell had not strengthened his case by saying that he had not made any profit by his transactions, as nurserymen could often say the same thing. He thought it was desirable that the question of defining what should be considered a *bonâ fide* nurseryman or amateur would be better deferred to a future meeting for fuller consideration, and concluded by proposing Mr. Dodwell's health, which was received with loud cheers.

THE INSECT ENEMIES OF OUR GARDEN CROPS. THE LETTUCE.

OUR juvenile naturalists are well aware of the fact, that in the lack of Mulberry leaves the common silkworm may be fed upon those of the Lettuce, and this plant, as the gardener often experiences to his vexation, is decidedly a favourite with a number of caterpillars belonging to the Lepidopterous order. Like the Cabbage and its allies, the Lettuce offers a convenient aliment to those caterpillars that prefer to feed near the ground, and more or less hidden from view. The caterpillars that are foes to the Lettuce are nearly all of the moth tribe, but the ubiquitous caterpillar of the small white butterfly (*Pieris Rapæ*) may be occasionally observed upon its leaves in small parties.

There is the familiar caterpillar of the tiger moth (*Arctia caja*) which is well clothed in black and grey, and which our children greet as a "woolly bear," though in the olden time people spoke of it as one of the "palmerworms," because its hairy garb resembled, they thought, the attire of the wandering palmers. Feeding by the wayside, the caterpillar seeks out Chickweed and Docks, but often the moth will deposit eggs in gardens, where a variety of plants serve for food to the caterpillars. The Lettuce, however, has a special liability to attack, it seems. The tigrine markings of black, white, brown and scarlet suggested the common appellation for this showy moth, which it is justifiable to capture and kill if ever it trespasses on garden ground, for every female deposits a large number of eggs. It is on the wing during July, and the caterpillars hatch out during the autumn, but feed little until after hybernation. Should they escape molestation, they are most voracious in May and June, and as they feed generally on the outer leaves of the Lettuce they can be easily found and removed. Few birds will touch these caterpillars, doubtless deterred by their long hairs, and it would appear they also keep off parasitic enemies.

Then in the destructive genus *Mamestra*, to which belongs the abundant Cabbage moth (*M. Brassicæ*) there are several caterpillars that infest the Lettuce; that of the moth just mentioned is one of these, but then its diet is very various, so that it may be found upon a dozen or twenty species in the kitchen or flower garden beside. The pot-herb moth, also rather oddly called the "bright line brown eye," from some markings in the wings (*M. oleracea*), is sometimes nourished by Lettuce leaves, but it is a tolerable promiscuous feeder while a larva. A rather local insect, the white colon (*M. albicolor*), the natural food of which seems to be the species of *Chenopodium*, shows a liking for Lettuces in gardens, the caterpillar feeding up earlier than that of *M. Brassicæ*, of which we may notice a succession through the summer. All these caterpillars are similar in habit, and nearly resemble each other, with smooth velvety bodies of brown or a dull green, small heads that can be hidden partially under the second segment, which has a plate or shield. That of *M. oleracea* inclines to be subterranean in habit, burying itself close to the stem of the Lettuce during the day. This caterpillar, and in fact all those in the group, are best detected at night by means of a lantern. Applications are not of much use, but soot or lime are sprinkled round the roots by some persons, and some caterpillars may be thus destroyed.

Upon the leaves of the Lettuce throughout Britain, yet not abundantly most seasons, feed the caterpillars of the shark moth (*Cucullia umbratica*). While it is light they conceal themselves under prostrate or bent leaves, eating ravenously after dark. Like their brethren in the genus, they are showy, the head and legs black, the body very dark brown, with markings and warts of smoky brown, also some orange spots. It is usually observed in August. The chrysalis lies underground from autumn to the next season, as do those of the species previously described, and they may be looked after during the process of digging or of forking. Every gardener has, at one time or another, handled the grey yellow-lined caterpillar of the silver Y, or gamma moth (*Plusia gamma*) fig. 80; this is another enemy of the Lettuce, but seldom occurs upon it in any large number. In our islands it is as a species less notably injurious to

cultivated plants than it is upon the adjacent Continent, where gardens are frequently desolated by swarms of this insect. And to add only one more to the list of caterpillars that diminish our crops of Lettuces, it should be remembered that the fat grub, so called, of the yellow underwing moth (*Triphaena pronuba*) may lie at the roots in May and June, escaping notice until the plants are pulled up.

A member of a troublesome brotherhood of tiny flies seeks out the flower heads of the Lettuce, and the result of its visitations is a loss of a certain portion of the seed. The moist winters of recent years have, however, been somewhat unfavourable for this insect, at least I judge that is the reason we have had few complaints concerning it for some time past. This fly (*Anthomyia lactucæ*) is like the Onion fly in size and form (fig. 81), but decidedly darker, the sexes differing in colour. The general tint of the males is black, but the abdomen is greyish, and the thorax has some white streaks. In the females we see a tint of greyish brown, the head having a red streak. Passing the winter in the chrysalis state, the mature flies come forth from April to June, and their eggs being placed at the base of the flower stalk (as is supposed) the maggots eat the unripe seeds, and they can migrate from stalk to stalk until they have obtained sufficient food. These are footless, with pointed heads and broadened tails, in length about a third of an inch when full grown. Some of them then descend to the earth, by chance or intention, and remain buried during the cold season. But the majority appear to turn to pupæ in the heads, and these objects, or "shucks," as they are styled in some parts of England, are of course apt to occur amongst parcels of Lettuce seed. It should be freed from them by running it through a sieve, the meshes of which will stop the "shucks," or otherwise, when the seed is sown, the pupæ of the fly are placed in the earth, from which the insect will afterwards



Fig. 80.—Gamma Moth.

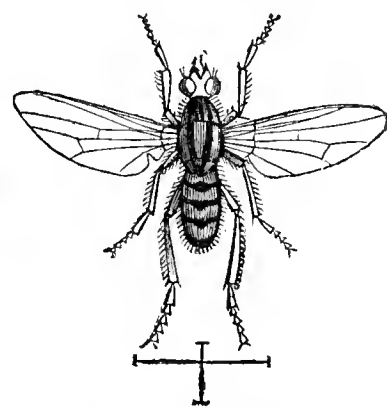


Fig. 81.—Lettuce Saw-fly.

emerge none the worse. The maggots become pupæ in or about September, but they should be searched for earlier in the season, and suspected Lettuce heads cut out promptly.

Then the Lettuce has its particular aphid. The species is all the more troublesome because it infests the roots of the plant, causing it to droop and languish, though seldom killing, unless the weather be very warm. This insect, *Pemphigus lactucæ*, is one of the very small aphides, but in its greenish yellow colour and general aspect it resembles the Plum aphid, only it is minus the honey tubes which offer such attraction to the ants that follow other aphides. It has been recently stated in these pages that diluted paraffin has been found to be an efficacious remedy, and not hurtful to the roots of the Lettuces; the safe proportion is about 1½ oz. to a gallon of water. Copious applications of strong soapsuds or tobacco water to the ground have also been serviceable. These things may serve also to destroy any of the wireworms or elaters, if such should be at the roots, and the partiality of these for the Lettuce is indicated by the fact that the leaves put amongst other plants answer as baits to attract them. Plenty of good manure is unfavourable to both aphid and wireworm.—ENTOMOLOGIST.

NARCISSUS TAZETTA VAR. FLORIBUNDUS.

Now that the Narcissi are engrossing so much attention from the horticultural public it may not be amiss to mention this fine variety, which has been growing in a semi-wild state for the past 200 years at St. Michael's Mount, near Penzance, Cornwall. This is one of the earliest, and so soon in the season as last Christmas I noticed several just commencing to flower. Its nomenclature was decided by Mr. F. W. Burbidge, to whom I sent a few plants some three or four years since. It would be interesting to know how they have succeeded in Ireland, and at what period of the year they flower there. It is during the three months of February, March, and April when the extensive colony at the afore-mentioned Cornish habitat is in its full beauty, the sight is then a very beautiful one. They grow and flourish exceedingly well within a few feet of the sea, thoroughly exposed to all weathers. As a matter of course the best effects are obtained by growing it in clumps. Considering *N. Tazetta* to be a south European plant, it is perhaps scarcely

surprising that the variety in question does so well in Cornwall.—
WILLIAM ROBERTS, *Peckham*.

VINE-GROWING AT CASTLE COCH.

At a recent meeting of the Cardiff Naturalists' Society, Mr. A. Pettigrew of the Cardiff Castle Gardens read a long paper upon some experiments in Vine culture out of doors which he had been for some time engaged in at Castle Coch. After referring to the history of the Vine as an outdoor fruit in this and other countries Mr. Pettigrew described his experience as follows:—

SITE OF THE VINEYARD.

It is now eleven years since my noble employer, the Marquis of Bute, told me he purposed planting a vineyard somewhere in the neighbourhood of Cardiff, on the French system, and named Castle Coch as being a most likely situation for trying the experiment. I was in Scotland at the time, and his lordship delayed definitely deciding till I had seen the proposed site and given my opinion of it, and of the suitability of the soil for growing Vines. I had at that time had no experience of the climate of South Wales, but I was pleased with the soil and the situation, and reported so to his lordship. The ground selected lies to the left of the Castle at a somewhat lower level, with a gentle slope to the south, and from the nature of the ground it requires no artificial drainage. It is protected from the north by a large plantation, which covers the breast and summit of the hill behind. It is also protected from the east and west by smaller hills at some little distance off, and lies quite open to the south, overlooking the Bristol Channel, which is four or five miles distant. The soil, which is 2 feet deep, is a light fibry loam resting on a broken limestone rock—just the kind of soil that Vines like to grow in. The plan proposed at first was to get an intelligent young man from some of the well-known vineyards in France to assist me in selecting the varieties and in planting the Vines, and perhaps to remain to dress the vineyard and make the wine. After some correspondence we learned that it would be extremely difficult to induce a person of the class wanted to leave his home and friends to come here on any consideration. I was accordingly instructed to go to France myself and visit the principal vineyards in the Medoc and elsewhere, and gain all the information I could. It was a rather perplexing duty to one totally unacquainted with the French language; but furnished with letters of introduction to wine merchants and the principal vineyard proprietors in France and others, I set out in the latter end of September in time to see the vintage of the year. After presenting my letters of introduction in Paris the principal of a large firm there kindly sent one of their men, who could speak a little English, with me for two days to show me the vineyards around Paris and other objects of interest. In visiting the vineyards my guide was at great pains to explain everything the vineyard proprietors told him respecting the different modes of culture. My practical experience of the Vine in this country enabled me readily to grasp the facts my teacher meant to convey. The general treatment of the Vine as practised in the small vineyards in the neighbourhood of Paris is somewhat different from the treatment they receive in the south of France, and quite different from the mode of Vine-growing followed in this country. Many of the small Vine proprietors cannot afford to keep a wine press for themselves; but every village in the wine district has a public press, the use of which can be had on payment of a small fee. Here the juice is extracted from the Grapes, run into barrels, and taken away and fermented at home. The small proprietors, as a rule, are an industrious hardworking class, who make the most of every inch of ground. The vineyards are neatly kept, and when young Vines are planted the spaces between them are filled with some other crop till the Vines are old enough to occupy all the ground.

THE CHAMPAGNE VINEYARDS.

After learning all I could in the vicinity of Paris I went to Chalons-sur-Marne, in the champagne country, with a letter of introduction to a gentleman of the name of Jacqueson, who was the proprietor of one of the largest champagne manufactories in France. Unfortunately, I learned on my arrival that he had gone to Paris, but his manager kindly showed me through their enormous cellars, which are cut in the chalk hills. Lines of rails are laid through the principal passages, and railway trucks are taken in and loaded and despatched to all parts direct from them. Openings are cut from the surface in several places in the cellars, and strong reflectors placed under them to give light. My guide informed me that they had a stock of five million bottles of champagne on hand. The treatment of the Vines here was much the same as that practised in the vineyards near Paris. M. Jacqueson, besides having a vineyard of his own, is a large buyer of Grapes from the Vine-growers in the district to make into champagne. The gentleman in Paris from whom I had the letter of introduction told me that M. Jacqueson's father was a Scotchman, and a great enthusiast in the culture of the Vine. He said that at one time he went to great expense in making straw mats to protect the Vines from the cold winds and chilling frosts in the early part of the season, with the idea of improving the crop and making a better class of wine, but the expense was so great that the scheme had to be abandoned.

BORDEAUX VINEYARDS.

I next visited Bordeaux, and delivered a letter I had to a large firm there, the head of which showed me great kindness. He placed one of his clerks at my disposal—a young Scotchman, who could speak French like a native—to introduce me to the managers of some vineyards in the Medoc, and to act as interpreter. We visited several vineyards, and I was fortunate in arriving in time to see the vintage of three of the principal chateaux in full operation. These were Chateaux Latour, Lafitte, and Margaux. Chateau Latour contains 103 acres, Lafitte 165 acres, and Margaux 197 acres. The conformation of the country here is that of a vast plain, with a gentle incline towards the river Gironde. The soil has to all appearance been covered by the sea at some time. The surface is sprinkled with small water-worn stones and sand, but the soil varies in places. The manager of one of the vineyards said that the variation of the soil caused a variation in the wine, so that in some places the best and most inferior wines grew side by side. As the Vines are the same variety and the culture identical, the soil alone can explain the differ-

ence. The vineyards are intersected by roads of just sufficient width to admit of a cart or wagon passing along conveniently without interfering with the Vines. These roads lead to the principal approach to the chateau where the Grapes are pressed. The Vines are planted in rows, about 3 feet apart each way, and the rows are as nearly at right angles to the roads as possible. When the vintage begins a cart with two half-hogsheads on it, drawn by two oxen, is taken to the section of Vines to be gathered. Women and children cut the bunches, and men carry the full baskets from the cutters and empty them into the half-hogsheads on the cart, and when they are full they are carted to the press-house, where they are converted into wine. The upper floor of the press-house at Chateau Lafitte is on a level with the top of the vats. The hogsheads are lifted from the yard below by machinery similar to that in use in granaries here, and the Grapes emptied on a boxed-in platform, containing a machine for separating the Grapes from the stalks. The berries pass through wire netting, and the stalks are thrown on one side. The platform runs on rails which encircle the whole set of vats. When the cart with the Grapes arrives the platform is run to the door, the hogsheads hooked on, raised, and emptied. The platform is then removed to the side of the vat which is being filled, and the Grapes passed through the machine and shovelled into the vat. The Grapes are not trodden with the feet here as I have seen done at some places I visited. When the vat is full a cover is put on, and it is hermetically sealed. A siphon is then introduced through the centre of the cover into the vat, and the other end of it placed in a tub of water, which allows the gas to escape, while the water in the tub prevents the air from coming into contact with the wine. After fermentation, which generally takes from four to five days in good seasons, though a great deal depends on the temperature and the state of the weather, the wine is drawn off and transferred to enormous barrels in the storehouse. When the wine has been all run off the pulp is put in the press and the juice extracted.

PLANTING THE VINES AT CASTLE COCH.

The vineyard at Castle Coch was planted in the spring of 1875, on the French system, as practised in the neighbourhood of Paris, Burgundy, and in the champagne country. The ground in the vineyard had been thoroughly trenched and levelled the previous winter. The Vines are planted in rows from north to south, 3 feet apart, and the plants are 3 feet apart in the rows, and trained to stakes 4 feet high, and pruned close to the ground every year. A great many varieties of Vines are grown in the vineyards of France, but some of the best varieties grown in the south do not succeed when planted in colder districts. I was strongly recommended by the Vine-growers in the vicinity of Paris to try the varieties I planted at Castle Coch (Gammy Noir and Mille Blanch) as being two of the varieties most likely to suit our climate. They are extensively grown about Paris, in Burgundy, and in the colder wine-producing districts of France. The plants have a strong constitution, they produce fruit freely, and make very good wine. We had three or four good seasons in succession after they were planted. They grew well and made strong canes, which ripened thoroughly. Gardeners and others who came from a distance to see the vineyard were surprised at the luxuriance of the Vines growing in the open air, and simply trained to stakes in the way that Raspberry plants are trained in this country. The sight about the end of July is a novel and interesting one. Long rows of Vines as straight as a line, in a curved slope down the hill, and the tops of the canes all neatly stopped at the height of 4 feet from the ground, with their large dark-green glossy foliage almost meeting in the rows, was a sight not to be seen anywhere else in this country. I was very well pleased with the progress the Vines made for the first three or four years. During these fine seasons the Vines on the Castle wall at Cardiff produced heavy crops of Grapes, which ripened well. Indeed, some of the bunches that were thinned were as good as the Grapes that are generally to be found at the *tables d'hôte* in France. Taking all things into consideration, I felt sanguine at this time that the experiment at Castle Coch would be a success in good seasons. The Vines were growing vigorously, and there were no signs of the dreaded phylloxera, so common in many places in this country now. The only pest that attacked them was a kind of fungus called "Oidium Tuckeri," which was soon got rid of by picking the affected leaves off and burning them.

PROGRESS OF THE VINES.

We made the first wine from the vineyard in 1877. The crop was not a heavy one, but sufficient to enable us to make about 40 gallons of wine. The Grapes were brought down from the vineyard to the gardens in Cardiff, and the berries separated from the stalks and crushed in a machine made for the purpose, and a little water added to the "must," which lay for twenty-four hours in a wooden vat before being put into the wine press. Three pounds of the best cane lump sugar were added to every gallon of liquor, and then it was all put into a barrel to ferment. Strong fermentation lasted for about twenty days, after which the bung was put in gently at first, and when fermentation had ceased altogether it was driven hard in. The wine was racked off several times during the following spring and summer, and it was finally bottled off after having lain for a little more than a year in the barrel.

In 1878 the crop of Grapes was better, but still far from being a full crop. The Vines were, however, gaining strength, and I expected to get a full crop soon, if the season kept favourable. The Vines broke well in 1879, and showed an abundance of fruit in the latter end of May, but with the cold and sunless wet summer that followed the fruit all dropped off, and we did not gather a bunch of Grapes from the vineyard. This was not much to be wondered at in a season in which farmers could not get their corn to ripen. In passing I may say with respect to the cultivation of the Vine, that one bad season in which Grapes will not ripen means two bad seasons in succession. If the Grapes will not ripen the wood will not ripen either, and it is upon well-ripened wood that a crop of Grapes, or any other kind of fruit mainly depends. The vineyard was a failure in 1880 on account of the wood not being ripened in the previous season. There was a very good crop in 1881, but I have not been able to make wine since, owing to the bad seasons that have followed in succession. The Grapes on the Castle wall at Cardiff have failed to ripen their fruit during this period. They show plenty of fruit, but the bunches get eaten up with mildew long before they are ripe.

To sum up briefly, the really experimental time for the vineyard at Castle Coch has been the worst we could have had for the last twenty or thirty years, and the results to be observed from the trial as yet cannot be pro-

nounced satisfactory. There is nothing in the conditions of the soil or climate to hinder the healthy growth of the Vines, but the absence of sun heat has prevented the development or ripening of the fruit. It has yet to be proved whether in a succession of ordinary good seasons a better result will be arrived at. I am myself hopeful that it may be; and that it may yet be found that the outdoor cultivation of the Vine may be prosecuted in favourable situations in this country (at least on walls and gables of houses) with not much greater risk of failure than in the case of ordinary garden fruits.

BEDDING HYACINTHS AND TULIPS.

HYACINTHS and Tulips are now grown so extensively, and their successful cultivation is so well understood for bedding out, that it is a difficult task to particularise instances where superior culture and choice of varieties demand special notice. I was, however, agreeably surprised to see in the gardens of Pentland House, Lee, a number of circular beds filled with that good-sized red variety of Hyacinth, Robert Steiger; the blue Baron Von Thuyl, also a single variety; and the Pottebakker white and vermilion-scarlet Tulips. The varieties were massed in separate beds, and the spikes of the Hyacinths were wonderfully strong, and the individual flowers large and striking in colour, as were also the Tulips. White Pottebakker is an excellent white for bedding, and a better choice of scarlet could not have been made than in selecting Vermillon Brilliant. I have seen and proved a vast number of other named varieties of Hyacinths and Tulips for bedding, but find the subjects of this note to be the best for the purpose. Mr. Reece, the gardener there, is an enthusiastic cultivator of the Hyacinth and Tulip both in pots and bedding out, and is certainly to be congratulated on the very effective display he has made and the general excellency of their culture.—SUBURBANIST.

ROYAL BOTANIC SOCIETY.

APRIL 23RD.

THE second spring Show of the season was well attended by exhibitors, but the greater portion of the display was furnished by nurserymen and non-competing amateurs. In the corridor the exhibits were much better arranged than at the previous Show, a broad table on each side being devoted to the plants in place of the central one, upon which they could not be seen to good advantage. The conservatory also contained several fine groups.

Stove and Greenhouse Plants.—A pretty bank was formed by the four collections entered in the class for twelve plants in 12-inch pots, all being of moderate size, healthy, and in several cases well flowered. Mr. H. James, Lower Norwood, was first with some beautiful Azaleas, Ixoras, Epacris, Eriacas, a good Anthurium Schertzerianum, and neat Francisca confertifolia. Mr. G. Wheeler, gardener to Lady Louisa Goldsmid, St. John's Lodge, Regent's Park, followed with a most creditable collection, his specimen of Hibbertia Reedi being in beautiful condition, Adenandra fragrans and Azalea Stella being similarly good. Mr. R. Butler, gardener to H. H. Gibbs, Esq., St. Dunstan's Lodge, Regent's Park, was third with rather irregular plants.

Azaleas.—Mr. C. Turner, Slough, had the best six plants in the nurserymen's class, pyramidal specimens of Duc de Nassau and Mons. Thibaut being loaded with large flowers. Mr. H. James was second, his best plant being punctata maculata, of conical form, profusely flowered. Mr. Wheeler staged the leading amateurs' six, rather loose, but well-flowered plants, followed by Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, and Mr. R. Butler, both showing plants of poor quality.

Roses.—One side of the corridor was devoted to Roses in the classes or otherwise, and these constituted one of the most beautiful and imposing features of the Exhibition. Both large and small plants were in admirable health and flowering abundantly. The best amateurs' six plants were staged by Mr. Perry, gardener to W. G. Rowlett, Esq., The Woodlands, Cheshunt, small but vigorous, with well-developed foliage and flowers. Mr. Wiggins, gardener to W. Clay, Esq., Kingston, took the second place with smaller but clean examples. Messrs. Paul & Son, Cheshunt, secured the leading place with nine plants, superbly grown specimens, 3 to 4 feet high and as much in diameter. Especially fine were Magna Charta, La France, and Madame de St. Joseph. Mr. Rumsey, Waltham Cross, was second with much smaller plants, but some had very large blooms.

Messrs. Wm. Paul & Son, Waltham Cross, contributed a magnificent group of Roses, both in pots and cut flowers; of the latter six boxes were staged. A few Clematises were also arranged with them and improved the effect. A silver-gilt medal was awarded. A large silver medal was awarded to Messrs. Paul & Son, Cheshunt, for an extensive and attractive group of Roses in pots, mostly specimens of moderate size and bearing large blooms. A large silver medal was also awarded to Messrs. Lane & Son for a good collection of about two dozen Roses in pots.

Messrs. H. Lane & Son, Great Berkhamstead, had the only collection of twelve Azalea mollis in the nurserymen's class, and were awarded the first prize for fairly well-flowered plants of buff, salmon, and reddish-coloured varieties. Messrs. H. Lane also won first honours with twelve Rhododendrons, large tree-like specimens, bearing enormous trusses of flowers. The variety Baroness Rothschild was especially notable for the brilliant crimson-scarlet colour of the neat flowers.

Auriculas.—Three collections of twelve plants were entered, Mr. J. Douglas taking first honours with strong plants of Pizarro (Campbell). George Lightbody (Headley), Smiling Beauty (Heap), Frank Simonite (Simonite), Mabel (Douglas), Conservative (Douglas), Jumbo (Douglas), C. J. Perry (Turner), Prince of Greens (Traill), Lord Clyde (Campbell), Marmion (Douglas), and Lancashire Hero (Lancashire). Mr. E. Pohlman, Parkinson House, Hereford, was second, and Mr. C. Turner third.

Mr. C. Turner secured first honours with nine Pelargoniums, well-grown plants with large flowers; Mr. J. Hill, The Gardens, Hillingdon Place, being second with small plants. Mr. James had the best nine Anemones of his usual good quality, followed by Mr. Hill and Mr. Todman, Upper Tooting. Two fair collections of twelve Amaryllises were entered by Mr. J. Hill

and Mr. R. Butler, who were first and second respectively, the flowers in both being small but brightly coloured.

A small silver medal was awarded to Messrs. Barr & Son, Covent Garden, for a large collection of Daffodils and hardy flowers tastefully arranged. A large bronze medal to Messrs. Carter & Co., High Holborn, for a group of Cinerarias. A similar award was made to Mr. Wiggins for a group of Cinerarias. A large bronze medal was adjudged to Messrs. Cutbush and Son, Highgate, for an interesting collection of greenhouse plants. A large silver medal was awarded to Mr. B. S. Williams, Upper Holloway, for a handsome group of choice Orchids and other plants.

A large silver medal was awarded for a large and fine group of Rhododendrons in pots, shown by Messrs. H. Lane & Son, The Nurseries, Berkhamstead. A large silver medal was awarded to Messrs. Paul & Son, Cheshunt, for a group of standard Roses in pots, which made an excellent display. A large silver medal was awarded to Mr. Wm. Rumsey, Joyning's Nurseries, Waltham Cross, for a splendid collection of about fifty dwarf Roses in pots, together with five large boxes of cut blooms: this group was exceedingly handsome and attractive. Mr. Charles Turner, Slough, exhibited an excellent collection of Show and Alpine Auriculas, for which a small silver medal was awarded. Messrs. James Carter & Co., seedsmen, High Holborn, showed a collection of their well-known Empress Poppy Anemone and Cockade Ranunculus, also a basket of Cloth of Gold Primrose.



KITCHEN GARDEN.

Thinning out Young Vegetables.—Parsnips, Carrots, Onions, Beetroot, Lettuce, and every vegetable which is sown in rows or beds grow fast at this season, and where the seed has been put in thickly the young plants soon become crowded. So much is this the case in many instances that by the time the plants are 2 or 3 inches high they have become a close mass, and they are drawn up and grow weakly in consequence of this. All young vegetables crowded in the seed beds show the injurious result of it for a long time afterwards, and many of them never fairly recover. If crops, no matter what they may be, are to be grown to the highest state of perfection crowding must never occur, and our readers would do well to bear this in mind at the present time. Some of the young plants should be drawn out as soon as possible, and by the time any crop is 3 inches high the plants should be 3 inches apart from each other. This is the preliminary thinning, and as growth advances it must be carried out farther; 6 inches apart is not too much for Carrots, and Parsnips should have double that space. Turnips are apt to become crowded before we know that they have begun to grow much, as they run up so fast, and they should be thinned out to 8 or 10 inches apart. Some growers do not thin their Onions, but they sow thinly, and where they come up in crowds some of them should be drawn out. In fact, wherever it is seen that the young plants are growing too closely and becoming matted thin them out as soon as possible.

Transplanting.—Lettuces, Cabbages, early Brussels Sprouts, &c., which have been raised from seed sown this spring should now be transplanted to their proper quarters. It is a great advantage to do this during showery weather, but when this does not occur it is better to attend to the transplanting rather than allow the plants to be spoiled in the nursery beds. When each can be lifted with a small ball of soil attached to the roots and planted with this entire they will not experience any check, and they will grow away freely. Should dry weather continue long after planting they should be watered until growth has fairly commenced, and the roots are penetrating the soil.

Mustard and Cress.—A constant supply may be kept up by sowing a patch of seed every fortnight. This may be placed in any corner, and the seed should merely be strewn on the surface of the soil, beaten down with the back of a spade, and watered if too dry.

Beetroot.—The main crop of this should be sown now. Dell's variety will always give satisfaction. The rows should be 15 inches apart and 2 inches deep. The soil must be free and open, and only moderately rich. As a rule growers are apt to sow too much Beet, and we have decreased our stock from time to time until we find that a few rows will supply the pantry for a very long time. Last year we had most of our Beet in the flower garden, as the leaves of Dell's are most effective, and may be used in a pleasing way in many combinations.

Kohl Rabi.—At one time this was supposed to become a substitute for Cabbage, Turnips, and many other vegetables, but in reality it possesses very little merit, and those who would like to grow it should not do so too extensively or they may be disappointed. It may be sown in a bed and transplanted when 4 or 5 inches high.

Spinach.—Sow the round-seed sort fortnightly in cool rich soil; seed put in now will produce a supply by June, and as it is not long in running to flower, from then onwards sow small quantities often until the end of July.

Celery Trenches.—These may now be made and manured ready for the first crops. If made 15 or 18 inches wide they will hold two rows, and this is a very convenient way of growing it. The trenches should be from 9 inches to 1 foot in depth, and the manure which is put into them

should be both plentiful and good. Between every two trenches there will be a space or ridge of soil 18 inches or more in width, and if Lettuces are planted on the apex of these they will be matured and cut before the Celery requires to be earthed up. Spinach, Turnips, or any quick-growing crops may also be put on these ridges.

Runner Beans.—The first row of these may now be sown. Sutton's Giant White is a splendid variety. It is large in pod, prolific, and finely flavoured. A sunny position will forward them and agree with them well, as this crop is a tender one and requires a little extra attention early in the season. A cold soil will not suit the seed, as the plants will be weak and chilled-looking in such. When the soil is light and dry they are much better. The drill for the reception of the seed should be 2 inches deep and 9 inches wide. Sow thinly and cover with some light sandy soil.

Tomatoes under Glass.—These must be restricted, and when a good crop of fruit has been formed stop all growths, and the fruits will swell off all the better for it. Do not give young plants liquid manure yet, but supply it freely to those in full bearing. Plants intended for open-air culture should be hardened off by being placed in cold frames before April is out, and in a fortnight hence they should be placed in the open in a sheltered position previous to being planted out.

Vegetable Marrows and Gourds should be treated in the same way.

FRUIT-FORCING.

Figs.—Earliest Forced Trees.—Figs started in November are now ripening, and to have them really good in quality considerable attention must be given to the house and trees, especially if the weather be cold and sunless. To secure colour the trees must have full exposure to light, and the means of admitting air freely with heat sufficient to allow of its being given in the coldest weather to prevent the condensation of moisture beneath the glass. In the treatment of the trees now remove all useless spray, thinning and stopping side shoots, and turning aside any leaves likely to shade the fruit. Although Figs require dry heat when ripening it must be borne in mind that the Fig is a gross feeder, and the roots require to be kept in a moist state through all stages, and this is best secured by mulching heavily with short manure or other non-conducting material after well soaking it with tepid liquid manure. The syringe, though it must not be used over the trees when the fruit is advanced in ripening, must not be entirely laid aside, as each time the ripe fruit is closely gathered a good washing with tepid soft water will greatly refresh the foliage and wood, and keep down red spider. The temperature may be now kept at 65° to 70°, and 10° to 15° higher by day from fire heat, and with bright sun 85° to 90°. Allow a circulation of air through the house constantly.

Succession Houses.—Generous treatment will now be necessary in the supply of heat, moisture, and syringing twice a day. Stimulants in the form of liquid manure should be given when the trees require it. Keep all stopping and tying well in advance, and thin the crop where too heavy, as the fruit will not be fine with too heavy a crop, but the trees are often seriously injured. Most trees show, when in good condition, far more fruit than they are able to bring to maturity, and if the border becomes dry the trees will shed the whole of their fruit.

Cherry House.—The fruit is now ripening rapidly; indeed, some of the most forward are fit to gather, and the fruit, whether ripe or ripening, must be kept free from moisture or it will crack and be entirely spoiled. The house, however, may be damped twice a day to maintain the health of the trees, leaving a little air on constantly at the top of the house to prevent moisture condensing so as to injure the fruit. Ventilate freely at all times under favourable external conditions, and when practicable allow a constant circulation of air through the house, and when the external conditions render this impracticable recourse must be had to the heating apparatus so as to ensure a circulation of warm and dry air. If black aphides appear they must be promptly exterminated by dipping the shoots or leaves affected in tobacco water, and rubbing them gently with the finger. Some netting will be needed over the ventilators to save the ripening fruit from the depredations of birds. As the shoots required for extension or filling up vacant space lengthen, tie in, but not too tightly, or it may produce gum, and stop those required for forming spurs at the fifth or sixth leaf. See that there is no deficiency of moisture at the roots, and trees in pots will need frequent attention.

PEACHES AND NECTARINES.—Early Houses.—Trees in houses where the fruit is swelling should, to ensure it reaching a good size, and especially where time has been lost in the stoning process, be closed early on fine afternoons with liberal moisture, syringing the trees in the morning and again after closing at 2 to 3 P.M. It is essential that the fruit become dry before night, for water lodging thereon for any length of time will cause the skin to crack, and it is then spoiled both in appearance and flavour. Examine the inside borders, and on no account allow the soil to become dry, and with the large spread of foliage exposed to the action of the sun the strain upon the roots is considerable, and will need copious supplies of tepid liquid manure and mulchings, partly decayed manure being most suitable. Too much stress cannot be laid upon this, as from a deficiency of moisture at the roots premature ripening and loss of the fruit before it has completed its last swelling is to be attributed; always taking into consideration the crop, as the fruit may not mature properly from an over-crop, or from a deficiency of water. Stopping beyond the fruit must have attention, and tying down so as to admit all the light practicable to the fruit, which should have any leaves turned aside or shortened, so that it receive the full benefit of the solar rays. Any dependant fruit should be raised and turned round to the light, so that its apex may be uppermost, supporting it in that position by thin laths fixed across the wires of the trellis.

Succession Houses.—Trees in the house started early in the year will have finished stoning, and when this is completed the treatment may be the same as advised above for early houses, with the addition of giving the fruit the final thinning. On trees in the house started at the beginning of February the fruit will not swell much during the stoning process and must not be kept too warm. Provide a night temperature of 60°, falling to 55° through the night, and keep at 60° to 65° from fire heat through the day, advancing to 75° from sun heat, ventilating from 65°, fully at 75°; do not allow a decline below this, but reduce the ventilation by degrees, and close at 75° for the day. Syringe well twice a day, and keep the inside borders supplied with water. Remove most of the smaller fruits that will not be required for the crop and which are not likely to stone satisfactorily. Thin out the shoots where too crowded, and tie down those originated from the base of the current bearing wood for next year's bearing. These ought not to be closer than 15 to 18 inches, and a similar distance should be allowed between the main branches. Stop the shoots beyond the fruit to a few joints, and remove any strong shoots, so as to cause an equalisation of the sap. Continue to disbud and thin the fruits in later houses, leaving few if any more fruits than will be required for the crop, as trees in good health under judicious management will not cast any or only a small per-centage in stoning.

Trees in late houses have set every blossom, and will need close attention to the removal of the surplus fruit; this and disbudding must be done gradually. Fumigate moderately upon the first appearance of aphides.

PLANT HOUSES.

Achimenes.—It would be difficult to name any flowering plants more suitable for the conservatory during the summer than these, and to have dwarf well-filled pans, and others in 5-inch and 6-inch pots for decorative purposes they should be raised from cuttings. Cuttings make much better plants than those raised from the tubers. The cuttings should be inserted in the pans and pots in which they are intended to flower in, for every one will strike root in a warm close atmosphere if shaded from the sun. It is not necessary to take the cuttings at a joint, for they will root as freely from the stem as the joint. After they are rooted and growing freely they should not be subjected to too much heat, or they will draw up quickly and half their beauty will be lost.

Amaryllises.—These useful bulbous plants are so accommodating that they should be grown in quantity in all gardens where choice flowering decorative plants are required. They can be had in flower successionally for months, provided they are assisted to make their growth at different periods, and are, after resting, introduced in heat and brought into flower as required. Those that have flowered should have every attention and be encouraged to make strong vigorous growth in an intermediate temperature. They should be arranged as close to the glass as possible, and must not be kept in a confined atmosphere, or their foliage will not be dwarf and sturdy. The majority that are still at rest in the greenhouse are showing signs of growth, and may be shaken out and repotted without delay in good sandy loam and a seventh of decayed manure. These need not be pushed forward in heat, but can remain in the greenhouse and be brought forward into flower as required. From this time they should be watered whenever they require it. When in active growth Amaryllises require abundance of water both at the roots and over their foliage, and when their pots are full of roots they are benefited by liberal supplies of liquid manure.

Kalosanthes.—For conservatory decoration these are not grown so much as they deserve, and when in flower they have a distinct appearance, and are very sweet-scented. Those prepared for flowering this season can now either be retarded or pushed forward. To retard them place half the batch in cold frames, and ventilate as much as possible, the remaining half should be kept in a night temperature of 45° to 50°. They should not be unduly forced in a close temperature, or their trusses of flower will be poor and the plants tall and weak instead of strong and compact. Give liquid manure freely as soon as the flower trusses are formed. Those cut back after flowering last year will not flower this season, but should, if they need it, be placed in larger pots, and stood in cold frames. Keep them close until they commence rooting, and then give abundance of air until they can be placed outside to finish and ripen their growths. To increase the stock select strong shoots from plants that will not flower, and insert them singly in 3-inch pots, placing them in an intermediate temperature until rooted. As soon as rooted pinch out the point of the young plants, which will induce them to form at least half a dozen shoots, which, if encouraged for a time in the temperature in which they are rooted, then placed in 6-inch pots when ready, grown under cool-frame treatment for a time, and finally ripened outside, will make grand flowering plants for another year. Kalosanthes do not require large pots, and succeed much better with feeding than overpotting. Employ a compost of good fibry loam, a seventh of manure, a little bone meal, and sand.



SEASONABLE NOTES ON BEES.

OUR fear that we should not escape a spell of the cold east wind has been but too surely verified. After having had a splendid revel among the Willow blossoms and various early flowers, bees have

during the last few days been compelled to exchange their delightful occupation outdoors for more prosy nursery work within the hive. Breeding had been going on at an unusual paco, and the rising temperature of the hives had been favoured by the great amount of warm sunshine and genial air without. While daily extending the brood nest the bulk of the bees had been able to get away to forage. Both pollen and honey in goodly quantity was added to the stores, and water was easily obtainable in every open leaf, for gentle showers supplied it usually in the night time, and the bees had not far to seek for it early in the day. But the cold breath of the east wind has been felt, now with leaden sky warning the bees not to quit their hives, now with treacherous sunshine tempting forth the unwary to be chilled to death in some shady spot. It is now that the bee-keeper must be on the alert to keep up the supply in the feeding bottle. Entrances should be also attended to—nearly closed when the cold air tells us that the bees will not wish to get out, and opened again should the wind blow from a warmer quarter, and the sunshine invite the workers to their pleasant task again.

The state of nearly all colonies which we have examined this spring is most forward. Where artificial means have been employed, in accordance with the teaching in this Journal, brood will now be in great abundance, and no harm will happen to the hives through a short spell of cold weather, provided that the continuous but slow supply of food is not neglected. It is in such nips of cold weather after warm that careless bee-keepers cause much damage to a stock of bees. The more carefully the stock has been hitherto fed the greater the danger by a discontinuance of such feeding now. Both queen and bees finding the supply suddenly stop become disheartened and cease, the one to lay eggs, the others to rear brood. The heat of the hive decreases not only in proportion to the decrease without, but in accordance with the cessation of activity within. No food to be collected at the feeding hole, no food to store, no movement in the hive, the bees consume less because they require less, doing less work, and thus less heat is given off from their bodies. As the heat decreases the bulk of the cluster decreases, and perhaps at last brood is left uncovered and dies chilled to death. Then follow other dangers, among them the danger that the stock will so dwindle that the survivors will not be able to clear out the dead brood, and it may in time become foul brood, and be a source of infection to a neighbourhood. This is a dark picture, but we are convinced that as much evil as we here pourtray has been effected in a district by a careless keeper of bees. It is by far better that those who cannot follow up a course of stimulative feeding without any cessation or intermission until the supply is abundant from without should let it alone altogether, see that their bees do not starve, and leave them otherwise to depend on themselves; but where the system of feeding is properly carried out, those who once try it will prove its wonderful effects in quickly working up a stock to great power, so that when the honey harvest really commences supers will be readily filled, or the extractor be fully employed.

This brings us to say a few words about supers. A correspondent was lately inquiring as to what super he should use. Our opinion is that there is but one super now which should be employed by those who wish to have their honey in a neat, portable, saleable form. The sectional super by far excels all others. They are most inexpensive; the best V-cut sections can be bought at about 4s. per hundred. Those $4\frac{1}{4}$ by $4\frac{1}{4}$ hold as nearly as possible 1 lb. of comb honey; those holding 2 lbs. measure $6\frac{1}{2}$ by $5\frac{1}{2}$. They can be had also U cut. These figures (V and U) refer to the shape of the groove cut out at each corner, in such a manner that a mere shaving of the wood is left, but this sufficient to hold the super together. They are purchased flat, and should be soaked in water for ten minutes before being put into shape. The V-cut ones are more easily put together, but the U-cut ones have this advantage, that where desired they can be more easily nailed. Only fine wire nails should be employed. A section crate is easily made. It can be a box to entirely shut in the sections, or a mere rack to support them and the dividers, covering all up, warming with drugget, flannel, &c. We have a preference for dividers of very thin wood. This can be purchased at a cheap rate from vendors. It is sawn so thin that it can be cut with scissors or pen-knife. Some use glass, some tin dividers, but wood is a warmer material than either of the former. Cardboard has been tried, but this will not do—the bees are prone to bite it into pieces. Some kind of divider should always be used between sections, otherwise one comb will be built larger than another, and the portability of the honey done away with. There is no doubt that straw supers (caps as they are called) are as readily taken possession of by bees as any we can use, but after the cap is filled it is unsaleable. The honey must be messed up before it is ready for use.

Glass supers we simply consider abominations. It is a difficult matter to get bees to begin in a bellglass, and when filled, although a pretty ornament, well—it had better remain an ornament. It is a

pity that encouragement is given to waste so much good comb honey by offering prizes at shows for bellglass supers. No, let those who want beautiful honey, portable honey, or saleable honey use sections. When warm weather returns, or even now in sheltered places with warm sunshine, bees will gather much honey from the fruit blossoms. Fruit trees are now flowering all over the country, and in the neighbourhood of orchards or fruit farms supers may be filled; but this will not be the case if too much room be given in the body of the hive. If bees and brood are covering from eight to ten frames when fruit-blossom honey is coming in abundantly a rack of sections may be put on. We would unseal a quantity of the honey in the outside frames of the hive proper, and the bees would be very likely at once to commence operations by carrying the unsealed honey aloft. Very thin guide comb should be given. The foundation made expressly for supers, if obtained of a good tradesman, will be composed of the purest beeswax, and so thin that it will be quite used up by the bees and nothing disagreeable be detected when the comb is eaten. Young bee-keepers will permit us to warn them against using thick foundation in supers. It is not pleasant when eating a piece of comb honey to find one's teeth sticking into a lump of hard wax. Such will be the case where the thick foundation made for the brood nest is used in supers. In sections we prefer to put only a narrow strip of guide sheet, and that of the thinnest manufactured.—P. H. P.

TRADE CATALOGUE RECEIVED.

Ellwanger & Barry, Mount Hope Nurseries, Rochester, New York.—*Select Roses for 1884.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Seedling Auricula (Rev. E. F. C.).—It is a bold and effective border Alpine, but of no value from a florist's point of view. The eye is much too large, the segments rough, and the pistil far too prominent to constitute a really good flower. Such varieties as yours are not grown in pots, but are attractive on rockwork and in flower borders.

Azaleas for Naming (D. C. and R. C.).—The specimens sent are varieties, not species, of plants, and, as we have repeatedly stated, we cannot undertake to name varieties of any flowers that were originally raised from seed in gardens. The only proper mode of obtaining the names is to send flowers to the nurseryman who supplied the plants for comparing with others in his collection.

Destroying Plantains on Lawns (H. S. J.).—If you refer to page 313 last week you will find the method described of destroying them with vitriol. We know this is effective, but if the work is roughly done, and the stick rubbed on the grass, unsightly marks will be made that will remain for some time. Women or boys should not be trusted to use vitriol on lawns or anywhere else. We have extirpated plantains from large lawns in the manner referred to. We have known a kind of lawn sand that used to be advertised answer its purpose well in some cases, but not in others, but have not been able to ascertain the cause of such differing results.

Grapes Failing (C. S.).—Probably the temperature of your house is too low for Muscats. The condition of the withered bunches suggests that such is the case, and also that the wood was not thoroughly ripened in the autumn. As the Vine is so unsatisfactory we should take a cane from one of the others and inarch it on the Muscat stock, which forms a good foster parent for most varieties of Grapes. You do not say a word about the temperature of the house in which the Vine has failed.

Vines Scorched (J. L.).—Your vinery has been kept too close and moist, possibly also too cold at night. Whatever moisture is applied, either by syringing the Vines or damping the paths of the house, should be applied sufficiently early, so that the Vines and house are comparatively dry before night; and it is also equally important that the top ventilators be opened slightly half an hour after the sun reaches the house in the morning, if not sooner. Leaving houses closed too long and then throwing open the

ventilators almost to their full width results in more injury to Vines than does almost any other mistake in management. This reply was in type before your second letter reached us. Your first did not arrive in time to be answered the same week.

Apple Buds Eaten (Novice).—They have been no doubt attacked by birds, and by a little attentive observation early in the morning you might see them at work. We have not known chaffinches to attack the buds of fruit trees, but one or two bullfinches often prove very destructive. We are glad to hear you have succeeded so well in raising Auriculas.

Vine Laterals Breaking (J. F.).—The "slipping off" of the laterals is not the result of any mismanagement of the border, but is due either to their coming in contact with the roof or wires, or to imperfectly tying them. If they are tied down too soon, or the ligature is too near the point of the laterals, the latter are almost certain to "slip off." We have known Vines seriously and permanently injured by defects in tying, as blanks made by the breaking of the laterals cannot be readily occupied by fruitful wood. Do you keep the house too close and moist, and thus make the growths unusually tender?

Cutting-down Vines in Spring (Doubtful).—If Vine rods are shortened when the laterals have only just commenced growing there is such a great loss of sap that they are seriously weakened; but if they have grown a yard or so, and produced a number of developed leaves, a rod may be safely cut off if there is another on the Vine to take the sap, or if there are strong growths below the point of severance. Such Vines will lose a certain quantity of sap, but the bleeding will soon cease, and the Vine will be as healthy as ever. We have known Vines improve by this process, and we have known others ruined by beheading them in early spring.

Gardenia Buds Deformed (Mrs. Radcliffe).—We have received the deformed buds, but no letter referring to the condition of the plants, nor to the treatment or temperature to which they have been subjected. We have noticed on several occasions buds deformed when they have been produced from the small side shoots in early spring, but not to the same extent as they appear to have done upon your plants. A check when the buds are in an embryo state, arising from the soil being kept too wet, causing torpidity of the roots, is sure to result in deformity, especially if the plants are kept in a high temperature, and thus their top growth is forced too rapidly for the sluggish roots to support the flowers. That is one cause of deformed buds; another is too low temperature, in which the whole plant is paralysed, while plants in an enfeebled state by any cause do not expand their flowers freely.

Zonal Pelargoniums and their Raisers (W. E. B.).—We cannot undertake to give the names of the raisers of the thousands of varieties that have been placed in commerce during the past thirty years. You, however, only ask for six at present, and we are enabled to supply you with five of them, perhaps some of our readers can give the sixth. Tom Thumb was raised by Mr. Willson, gardener, Dallingham House, Newmarket, and was placed in commerce about forty years ago; Mrs. Pollock was raised by Mr. Peter Grieve at Culford, Bury St. Edmunds; Bijou was raised by Mr. Westwood, Turnham Green; Crystal Palace Gem by Mr. Gordon, who was outdoor Superintendent at the Palace; Lord Palmerston by Mr. Donald Beaton; and Christine was raised by Mr. F. R. Kinghorn, Sheen Nursery, Richmond, but we do not know the raiser of the variety you call Magenta Christine.

Vines not Fruiting (W. A. B.).—You do not mention the varieties, some of which naturally grow luxuriantly and bear fruit sparsely. Still, judging by the sample sent, the soil of your border is much too rich and deficient in calcareous matter. An application of lime would probably be beneficial, but the best remedy would be to lift the Vines in September, or when the fruit is cut, and place the roots in a compost of fresh loam, with an intermixture of lime rubbish and charred refuse, and half a bushel of crushed bones to each cartload of soil. The border need not exceed 2 feet in depth, nor be wider than the roots extend; and it can be kept fertile with the Vine roots near the surface by mulchings of manure. This, with thinly training the growths so that every leaf is exposed to the sun, and judicious ventilation to insure the ripening of the wood, will result in fruitful Vines. Perhaps the growths are too crowded now, and the house kept too close and moist.

Raising Anemones (J. B. Loft).—Single Anemones are readily raised from seeds, and plants raised early by sowing now commence flowering next year if grown in fertile soil. The year following they will be very fine if the tubers are not disturbed. The seed being very woolly must be separated by rubbing it with sand, and then scattered in drills about 6 inches apart and 1 inch deep, saturating them before sowing if the soil be dry. Should bright weather follow it will be advisable to shade the beds with mats or some other material, as the seed will not germinate freely; and shading is much better than watering after sowing. If the seedlings are crowded patches of them may be dug up with earth adhering to the roots, and transplanted in showery weather in summer. Fresh seed should be obtained, as the old does not germinate freely.

Salting Asparagus Beds (G. Melton).—This is certainly not an "old and useless" practice, whether you have found it valueless or not. Salt is not only an excellent manure for the crop, but it can be given safely in sufficient quantity to destroy weeds, or, what is better, prevent their growth. We never weed our Asparagus beds, because a weed is never seen on them, while we never fail to cut excellent heads of this esteemed vegetable in their season. But the soil of our beds is fertile and the plants strong. Salt will not make Asparagus grow where there is none, nor will it enable you to cut large heads from weak crowns. We apply it at the rate of about 3 ozs. to each square yard, at intervals of a week or two, and we have found by many years of experience that the dressing is beneficial. Had it been otherwise we should have discontinued the practice long ago.

Old Essays on Auriculas (N. L.).—We scarcely know what you mean by "Gilbert's Essay." Bound with "The Florist's Vade-Mecum," and mentioned on the title page, is "The Gardeners' Almanack for five years, 1683-1687. With monthly directions what ought to be done in either kitchen or flower garden for ever." And appended to it is a "Treatise of Auriculas," of which he and others were great patrons, as is told in this paragraph of its introduction:—"Peter Egerton of Boughton near Chester, Esquire: I can-

not but let every lover of flowers know his remov'd abode, to his estate at the Hall of Shaw, near Manchester in Lancashire, where he will keep up (and increase as new faces appear) his choice collection of plants and flowers. The last April I waited on him, before he removed from Boughton, and there found many Auriculas, that were not mention'd in this Compendium, and also three or four that I afterwards saw in the Pallace Garden at Worcester, belonging to Mr. Thomas Newton, gentleman to my very good lord, the Right Reverend Father in God, James Lord Bishop of Worcester. So that from Mr. Egerton's collection, who was the best florist in Cheshire, and hath the same pre-eminence in Lancashire, and Mr. Newton, who may challenge the same for skill in Worcestershire, and myself in Shropshire, and consequently from the choicest collections in these nations, I desire you accept the ensuing catalogue of the best single striped, double, and double striped Auriculas."

Various (A Lady).—You will probably not err by pinching the Vines at the top of the house, though some gardeners allow the growth to extend and hang down the back wall to encourage root-action. The precise method to adopt, as regards stopping them or permitting them to extend, cannot be determined without a knowledge of the condition of the Vines. The temperature of the house in which the Vines are flowering is right, and provided you keep the air buoyant by judicious ventilation, full bunches of fruit ought to follow. Drawing the hand gently over the bunches when they are dry early in the forenoon accelerates the setting process, so does tapping the bunches or giving the Vines a short and sharp shake, as this distributes the pollen. A soft brush lightly drawn over the bunches has the same effect. The temperature of your second house is also right. Your gardener has probably acted rightly in top-dressing the Amaryllises, also in potting the Epiphyllums, as we assume the latter needed larger pots. It is, however, very easy to overpot these plants, but as you neither indicate the size of the plants or the pots we are unable to answer your question explicitly. A light shelf in a warm house is suitable for both kinds of plants. They cannot have too much sun, and must have sufficient water to keep them growing until August, then the supply must be gradually reduced, just enough being given to keep them fresh without promoting further growth. All the sun possible and a dry atmosphere will be suitable for ripening the growth, which is essential for the formation of flowers. A bright and genial summer and a hot and dry autumn are the conditions requisite for growing both kinds of plants successfully.

Vines not Thriving (J. M.).—Your first letter was not received by us nor, presumably, was the post-card we sent in answer to your second received by you. It was not necessary to publish your letter in the Journal, and possibly if it had been inserted it would not have elicited a reply, since ordinary readers, and indeed good gardeners, would have felt that more particulars were needed to enable them to answer satisfactorily. We answer all such questions ourselves, and our reply was prepared and in type before your letter of the 17th inst. arrived. If the Vines had been heavily fruited before you had them, they ought not to have been sold for planting, as Vines that are fruited in pots are usually exhausted by the crops they produce. We can scarcely think, however, that the nurserymen you name would sell inferior—that is, exhausted—Vines. Have you asked them if the Vines were fruited before you had them? Many Vines fail because the canes are not well shortened when they are planted, or, preferably, a month or two before, if they are planted in the spring. For instance, if your Vines were 7 or 8 feet long, and were left that length, we should not expect them to do well—not half so well as if they had been shortened to a length of 3 feet. It would not do to shorten them now, they are just starting, but if cut down in the autumn to the base of the rafters, strong growth would probably follow that would bear well the following year. You might try one or two of the weakest. If they will not bear as they are you have nothing to lose, while the gain may possibly be considerable—always provided you treat them properly in respect of atmospheric moisture, temperature, and ventilation. Errors committed in these respects spoil the best of Vines; but even if the best treatment is accorded, Vines that have been heavily fruited in pots and then planted without severely shortening the canes, cannot be expected to flourish. We have never known the firm in question to sell exhausted Vines. They would no doubt dispose of such Vines if ordered, and charge a reduced price for them accordingly; but cheap Vines are dear in the end.

Azaleas after Flowering (D. E. Best).—A good place for them is a Peach house or vinery at work, or any position where slight shade can be given and a moist night temperature of 55° or 60° maintained. It is decidedly preferable to encourage them at this season than to subject them to hard forcing when wanted to flower during winter or early spring, which not unfrequently ends in failure. Plants that make their growth and set their flower buds early force into flower when wanted with ease and certainty, in fact unfold their blooms almost naturally as soon as heat is applied. When these plants have started fairly into growth and their roots are active potting can be done if required. Before commencing this operation see that the soil is sufficiently moist, so that no water will be needed for some days after repotting. Use clean pots and afford liberal drainage, which should be carefully placed in the pots and covered with a layer of moss. Good fibrous peat, with a liberal admixture of silver sand, is the most suitable compost for these plants. Remove the old drainage carefully, but do not disturb the remaining portion of the old ball. The new soil must be pressed firmly into the pots round it, so that water when applied will not pass through it and leave the old soil dry, which means serious injury and even death if the error be not quickly detected. If repotting is not necessary apply weak liquid manure, or, better still, give two or three applications on the surface during the season of some artificial manure purposely prepared for plants in pots. This in many instances will prove as beneficial as repotting.

Vines in Pots (H. S.).—Our last reply to you was on page 274. You sent stamps for numbers, but not sufficient, and accidentally omitted your address. We naturally expected hearing from you during the week, and your letter would have directed us to your question, which was placed in the envelope containing the stamps. We are now in this position of possessing your stamps while you again omit your address, and we cannot send the numbers. We can, however, answer your question by quoting Mr. Barney's description of his method of growing Vines in pots. It simply differs from

the ordinary practice inasmuch as the Vines are repotted when starting into growth. On this subject Mr. Bardney observes:—"It is by no means a common practice to remove Vines intended for fruiting from the pots in which they have been grown the previous year into those of a larger size. The system may not be new or original, but I have never seen it carried out until I practised it here in 1879 as an experiment, and was then ridiculed by more than one, who said if the Vines had been plunged in pots of a larger size, and the bottoms knocked out of those in which they were growing, there would have been some sense in the plan. This considerably daunted my courage for a time, and I entertained grave doubts about the success of transferring Vines into larger pots. However, they succeeded so well that I was tempted to try it again last year, which I did with marked success, and can now recommend the system as a safe and satisfactory one. This operation must be carried out with care both in potting and supplying the Vines with water afterwards for some time, or the result may not be very satisfactory. Grapes can be grown finer in pots both as regards bunch, berry, and flavour—in fact, in all respects when subject to repotting if carefully done—than could be the case if the Vines remained in the pots in which they were grown. After the Vines become established in their new pots they are not so uncertain as when fruited in the pots in which they were grown. They are not so liable to become dry at the roots, or to suffer from too large a supply of water, as is sometimes the case on the other system. Not unfrequently, for fear of erring on the wrong side, they receive too much water, and at a time when they are being supplied liberally with liquid manure. When repotted they have abundance of substantial food in all stages which would otherwise have to be supplied by means of the watering pot. If liquid manure is applied long after colouring commences the flavour of the Grapes is invariably deficient, and, if not supplied with stimulants, what have the Vines to feed upon in the pots in which they were grown the year previous? When repotted they do not require much feeding. A little can be given according to the richness of the compost and the size of the pots; it can be discontinued at any time, so as not to be any detriment to the flavour of the Grapes. I must here condemn the system of starting Vines in bottom heat, and having their roots in advance of the top growth, if they are intended to be repotted afterwards. I have tried it, but cannot recommend it: the fresh roots are broken in carrying out the operation, and do more harm than good, and the system is dangerous and uncertain. Before potting the soil should be in readiness, and laid for a few days before being used in the house in which the Vines are growing, to be well warmed, so that no check will be occasioned by the use of cold soil. The soil should be rich, and consist of good fibry loam, manure, and small bone dust, and a little coarse sand if needed, or any other ingredients Vine-growers prefer, but the compost given will answer the purpose well. The pots should be well drained and covered with the roughest of the compost or a few horse droppings, and then potting should be proceeded with, the crocks and any loose soil from the surface of the old ball only being removed, disturbing the roots as little as possible. The soil must be pressed firmly into the pots, gradually sloping to the Vine in the centre, and, if convenient, space should be left for further top-dressing. I have tried reducing the old ball, or, at least, disentangling some of the roots to lay into the new soil, but this is scarcely a safe plan. Before potting, the old balls should be in a thoroughly moist state, so that water will not be necessary for a few days or a week. After potting the Vines can be tied up where they are intended to fruit, and if bottom heat is to be applied after the Grapes are set they can be so arranged in tying that the pots can be drawn forward to the bottom heat without untying. If plunged the watering must not be left to a careless hand, but to one who will use the water pot judiciously, and apply the water with care and caution. Careful watering is needed in all stages, but especially until the pots are well filled with roots." We know of no means of preventing some of the eyes of layered Vines rooting more quickly than others, nor do we see what would be gained by preventing their growth.

Names of Plants (Somerset).—Acer Pseudo-Platanus. (Pen and Ink).—1, Lunaria biennis (Honesty); 2, Stachys lanata; 3, Chrysanthemum maritimum compactum; 4, Pulmonaria officinalis. (L. A. M.).—1, Sorbus aucuparia (Mountain Ash); 2, Acer Pseudo-Platanus; 3, Carpinus Betulus (the Hornbeam); 4, Kerria japonica flore-pleno. (Polly).—The truss you have sent is one of the many seedling forms of the Primrose, apparently intermediate between the Primrose and Polyanthus. We have some exactly like it, but do not consider the variety worthy of naming. We simply call it the White Primrose Polyanthus. (J. T. S.).—Sparmannia africana. (L. W.).—Amelanchier Botryapium. (J. S. Y.).—It is a variegated form of Plantago major. You would find Notcutt's "Handbook of British Plants," published at this office, useful, price 3s. 6d., post free, 3s. 8d. (C. J. S.).—Dielytra eximia.

COVENT GARDEN MARKET.—APRIL 23RD.

BUSINESS at a standstill, indoor fruits and vegetables meeting no demand.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 5 0	Oranges	100	6 0 to 10 0
Chestnuts	bushel	10 0 0 0	Pears, kitchen ..	dozen	1 0 1 6
Figs	dozen	0 0 0 0	" dessert	dozen	1 0 5 0
Filberts	lb.	0 0 0 0	Pine Apples English ..	lb.	2 0 3 0
Cobs	per lb.	1 3 1 6	Plums and Damsons ..		0 0 0 0
Grapes	lb.	5 0 10 0	Strawberries	lb.	2 0 6 0
Lemon	case	15 0 21 0	St. Michael Pines ..	each	2 0 8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	0 9 to 1 0
Beans, Kidney ..	lb.	1 0 1 6	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 0
Broccoli	dozen	0 9 1 0	Parsley	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6 2 0	" Kidney	cwt.	4 0 5 0
Carrots	bunch	0 3 0 4	" New	lb.	0 4 0 6
Cauliflowers	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy	bundle	1 0 0 6
Coleworts	doz. bunches	2 0 4 0	Scorzoneria	bundle	1 6 0 6
Cucumbers	each	0 3 0 6	Seakale	basket	1 0 1 6
Endive	dozen	1 0 2 0	Shallots	lb.	0 3 0 0
Herbs	bunch	0 2 0 0	Spinach	bushel	2 6 3 6
Leeks	bunch	0 3 0 4	Tomatoes	lb.	2 0 3 0
Lettuce	dozen	1 0 1 6	Turnips	bunch	0 3 0 0



IMPROVING AND REGULATING THE SUPPLY OF FRESH BUTTER.

(Continued from page 316.)

HAVING alluded to the breed of cows best adapted for butter-making we must next refer to the means of regulating the supply. There is no doubt that it is a good plan for dairy farmers to breed their own cattle, in order that they may be assured of the qualities of the animals when mated; in fact, we never ought to breed from a cow with a small record of milk, even if the cream is rich. On the other hand, it is not advisable to retain in the dairy any cow with a large record of milk of poor quality with but little cream. There is another way to view this matter which is not favourable to the raising of butter-making cows by the dairy farmer himself, for only a comparative few of such men, although they may attempt to rear their own stock for furnishing full records of butter, possess that knowledge of selection and discrimination of animals having all the required points and qualities which can alone secure those required in the progeny. As this is a well-known state of things we will not attempt to enforce the breeding and rearing of the farmer's own stock, but advise him to select in the markets such animals only as are not only great milk-producers, but will also furnish a record of the most cream. We must not be too positive as regards the position and situation of the dairy farmer to be able, except at great inconvenience and expense, to obtain the best butter-yielding cows, for in many of the western and north-midland counties, where the making of cheese prevails to a great extent, cows as great milkers may frequently be obtained. It is not, however, easy to obtain the Channel Island cattle without being prepared to purchase animals bought on commission, in which case the farmer is entrusting his business in the hands of men who may or may not be able and willing to furnish him with such cows as are specially suitable for butter-making. Thus it will be seen there are difficulties to contend with in each direction. The farmer must not, however, be discouraged by the prospect when entering upon his business; but we will endeavour to direct him in the right course.

First make it a rule, which may always be considered a safe one, that "like begets like," and in the endeavour to carry out this object, if we breed only from those animals on either side which possess, or in the case of male animals have descended, from stock possessing the double capacity of large records of milk and cream, the farmer will then be moving in the right track; but breeding is not really so simple a matter as many suppose. Everything depends upon judicious selection of animals for mating, not only in the first instance but ever after, so that selection, and that almost entirely, is the only security for successful operations in breeding our own stock. It often requires the utmost resolution and determination to discard some animals which have not a record of produce such as can yield full profits. This selection can only be obtained by adopting what we will call the American system of keeping a daily record of the milk given by every cow, so that by careful selection and breeding only from the heaviest milkers of the highest cream record, by sires also selected from the heavy milking dams, this will most surely produce results which may seem all but impossible. We have one more point to consider, which is the result of our own experience, for in the event of cross-bred cows being chosen for a butter-yielding dairy, that the cross should be obtained from the Shorthorn cow being mated with the Channel Island bull, the Guernsey, however, being the best; and Guernsey blood will furnish the greatest record of the richest cream.

Let us now try to ascertain the quantity of milk which should be considered as a full record from each cow per annum, for although some cows of a good breed or cross may furnish a good weight of milk per week for a period of five or even six months, still we do not consider the milking period is sufficient when limited to any such period, but should really be regulated by the time when the cow again springs for calving the next time. As a cow yielding a large quantity of rich milk requires much more care and attention than a poor milker, it becomes a more difficult question, especially if we consider improving our supply to consist of several operations in care-taking, because in neglecting either it is at variance with those systems upon which our profits are based. Feeding is an important point to which we have sufficiently referred; but health, especially during pregnancy, is of the highest importance, and as abortion amongst cows is a most serious derangement of any mode or system

of management and loss of profits, we should first consider the causes and next the prevention of its extension in the herd. First, then, is it hereditary? This we cannot say decisively; but we certainly can say it is very bad management to again attempt to breed from a cow which had aborted in the true sense of the word—that is, that the abortion did not occur through accidental or bodily injury. Under every phase of this disaster we should secure the herd against infection by removing the affected animal immediately upon discovering those symptoms which are the prelude to actual abortion to a close hospital pen, so as to completely isolate the animal from the herd. We cannot advise any attempt to breed from a cow which has aborted, even if she may be the best animal we possessed, and as there is then no excuse for her being allowed to associate with the general herd, but it should be kept in box for feeding at once for beef. It is the attempt to retain an aborted animal for further breeding purposes which is the active source of mischief hereafter. To practical farmers it is well known that the ergot of Rye is frequently formed in the seed heads of Grasses which may be left in the pastures, and is the source of abortion in its most serious form; and having this knowledge, the tufts or bunches of seed heads found in pastures may be simply rendered innocuous by running the scythe or mowing machine over the pastures in the early autumn before the seeds in the Grass heads become diseased with ergot, which it is very likely to be, especially in showery and dark sunless seasons.

The cleansing of stalls or cow-pens is an important matter after disorders or diseases of any kind has occurred on the premises amongst the cattle, therefore we recommend that the dairy houses and stalls be cleansed by washing down and rinsing the stall floors, &c., with water containing chemically pure sulphuric acid, at the rate of 3½ lbs. to forty gallons of water (for the odour of carbolic acid or chloride of lime is enough to make a cow abort, while sulphuric acid has little or no odour). As the ailments to which dairy cows are subject are many and serious, it is almost or quite impossible for the farmer or dairyman to be able even after the longest experience to understand and successfully treat various diseases to which dairy cows are liable, we therefore advise that the services of an experienced veterinary should be obtained.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—On farms where a close system of cropping prevails the greatest economy possible should be practised, and in order that the work for the horses on the farm may be done effectually and within a given period the horses should be powerful animals, not less than 16½ hands high, and stout in proportion. We have often ploughed with one horse on a fallow surface and scarified also, using one horse attached to a strong horse-hoe frame, and using the stout and strong tines and points in lieu of hoes, and in this way one horse will do a more valuable day's work on fallows than in any other way, and move the land, too, as deep as the plough has gone, thus breaking and pulverising the furrow completely. Some farmers will not hear of one-horse labour, but let them learn a lesson from the market gardeners near towns, who in the district in which we farmed for many years adopted the one-horse labour after our having set the example on our farm in ordinary summer tillage. The work now will be the completion of sowing Lent corn; we, however, never think of sowing Barley after the 14th of April, let the land be ever so kind or good in condition, for it seldom yields a malting sample when it is sown after that date, whereas if drege is sown at the rate of three bushels of Oats and one bushel of Barley per acre the crop would frequently prove double that of Barley sown alone. The Barley may be screened and separated from the Oats and sold for malting purposes, for Barley grown as a mixed crop will nearly always yield a good sample, whereas when sown by itself it would prove only grinding grain; the Oats being used for feeding the farm horses will also yield a large acreable produce when sown on land in good condition, either following late roots fed off by sheep, or broken up and ploughed under as manure. The seeding of Wheat after a fallow and autumn-sown makes the best preparation for seeding for a permanent pasture. We finished one field in capital condition after sowing a mixture somewhat in accordance with our seedings as stated in this Journal last month under the heading, "Seeds for Laying Land into Permanent Pasture." This field was finished on the 11th of April, the seeds were buried well, and the land left rolled without injury to the Wheat plant, although the surface was harrowed several times to bury the seed. We have also seeded several fields where the Wheat was sown after roots ploughed in, also Mustard, &c. This has worked off well without injuring the Wheat plant, the seeding being done in accordance with our statement in this Journal under the heading of "Seeds for Alternate Husbandry," given in the last week of March. We shall now be preparing for Carrot seeding, and we prefer the Red Intermediate variety, as they grow short and thick in shape, and can be dug at much less cost than any deep-rooting sort, the labour saved being an important item in their culture and lifting. These Red Carrots, too, sell better than White Belgian variety, either for the vegetable markets or the feeding of horses in towns. The shallow-rooted Carrots can be sown after Trifolium by once ploughing, but the long and deep-rooting sorts would grow forked if sown on land cultivated only by once ploughing.

Hand Labour.—The men have been busy sowing the Grass seeds, the

light seeds being sown separately from the heavy seeds, such as Clover, Sainfoin, &c., both, however, being sown by Bennett's seeding barrow. The women will be employed in the barn by preparing Carrot seeds, which is done by using leather harvest gloves for hand-rubbing the seed in order to rub off the husk or burr; the seed, when this is done properly and passed through the winnowing machine, will run as freely in the drill as the seeds like Parsley, Turnips, &c., and we find this is an important matter, and enables us to obtain much more regular and even plant than when drilled as formerly, mixed with ashes or artificial manures with which it was previously mixed. As the seedtime is now so near we will state that we prefer to drill with the garden or hand-drill on the stretch at 18 inches between the rows, which will enable the horse-hoeing to be done when the weeds begin to grow without reference to the size and forwardness of the Carrot plants, which may afterwards be safely hand-hoed without difficulty. On the home farm coppice and row woods will be finished cutting, and the cutting of the Oak timber will have been nearly done if the weather has proved favourable for stripping the bark from them. The men will be employed in the manure house if hindered in the field work in breaking down, mixing, and preparing the guano, bone superphosphate, &c., and replacing it in bags ready for use in the fields for drilling with the Carrot, Mangold, and other seeds. Cabbage plants will now soon be fit for planting out if grown in the mansion gardens, as they are frequently.

Live Stock.—The epidemic lameness in sheep, often called foot-rot, still prevails in certain districts where the roots were being fed off on cold flat-lying soils, and we notice that the ewes and their lambs also are suffering. Now, like many other stock diseases, we find that prevention is better than cure, at any rate a successful remedy when applied at the first or second day of the outbreak this lameness will yield to a remedy we have used for upwards of forty years. In the western and south-western counties where the horned Dorset and Somerset stock was kept foot-rot prevailed previous to the great outbreak of the epidemic in 1839 and 1840. But up to that time the flocks of breeding ewes and their lambs never suffered from foot-rot unless it was introduced from the before-mentioned districts, but since 1839 no district in the kingdom within our knowledge has been entirely free from the epidemic lameness when the seasons favoured an outbreak; for it is well known to all our most experienced farmers that in certain seasons the rams were lame when mated with the ewes, and thus the disease has become hereditary, and may therefore, and does occasionally, show itself, for the present season is no exception to the outbreak, especially amongst the different varieties of short-woolled down breeds. The long-woolled stock of the midland counties, &c., have not suffered so seriously as the down breeds, nor did they suffer from foot-rot in former times like the short-woolled, horned, or down breeds. Our remedy is made by the following recipe:—Take 3 ozs. of nitre, 3 ozs. of blue vitriol, 3 ozs. of gunpowder, reduced as fine a powder as possible, and mixed with hog's lard sufficient to form a glue-like paste. This has proved a much better remedy with us than any caustic lotion, but it should be applied within twenty-four hours after its appearance to prevent its spreading.

OUR LETTER BOX.

Guernsey Cows (H. S.).—Guernsey cows are much larger than the Jerseys, and give a larger quantity of milk with cream capable of being made into the very best butter and superior in colour, odour, and flavour to any other. The cows are larger frame and heavier in the carcase, and are much neater about the head and horn than they used to be. The back number of this Journal, dated November 8th, 1883, gives an excellent illustration of a well-bred Guernsey cow, called "Elegante," bred in the island. If good cattle of this breed are required they can be obtained from Mr. E. P. Fowler of Southampton, from whom we have purchased during the past forty years. The Brittany cows, which are bred largely all over that district, may be obtained of the same importer at Southampton.

Hens Dying (W. S. Hutt).—See answer in this week's *Poultry*.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1884.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
April.											
Sunday	13	30.051	44.2	40.6	N.	46.4	55.0	33.5	104.2	27.9	0.028
Monday	14	30.076	43.6	40.7	N.E.	46.0	54.8	35.7	101.7	30.7	0.018
Tuesday	15	29.983	45.0	43.3	N.	46.2	51.9	39.4	73.3	37.6	0.017
Wednesday	16	29.867	45.0	41.6	N.E.	46.3	49.4	37.9	62.0	35.6	—
Thursday	17	29.966	43.1	39.4	N.E.	45.7	45.4	36.4	65.3	33.6	—
Friday	18	30.005	39.6	35.4	N.E.	44.6	48.4	34.8	93.9	33.4	—
Saturday	19	29.870	41.3	36.4	N.E.	44.5	48.5	33.7	86.4	33.0	—
		29.974	43.1	39.6		45.7	50.5	35.9	83.0	33.1	0.063

REMARKS

13th.—A fair pleasant day, but without much sunshine; a little rain at night.
 14th.—On the whole cloudy and dull, with one or two sprinkles of rain, but occasional bright sunshine.
 15th.—Wet morning; cloudy afternoon.
 16th.—Dull cloudy day.
 17th.—Dull, with spots of rain at intervals; very cold N.E. wind.
 18th.—Fair, with a good deal of sunshine, but cool.
 19th.—Fair day, but not much sunshine.
 A dull cold week, with a good deal of trying N.E. wind, especially in the latter half. Temperature about five degrees below that of the preceding week, and nearly three degrees below the average.—G. J. SYMONS.



COMING EVENTS

1	TH	Royal Society at 4.30 P.M.
2	F	
3	S	
4	SUN	3RD SUNDAY AFTER EASTER.
5	M	
6	TU	
7	W	Society of Arts at 8 P.M.

FRUIT BLOSSOM.

A LESSON OF THE SEASON.

SPRING time is with us once more rich, we trust, in promise of a summer and autumn teeming with fruit, for Pears, Cherries, and Plums are already beautiful "clouds of bloom," and Apple blossom, though not yet expanded, is equally abundant and full of promise—promise, too, that has more probability of realisation than that of the more forward fruit which now, April the 24th, has for several days and nights been in jeopardy, the thermometer falling to the freezing point, the foliage and most exposed blossom being stiffened with frost night after night, a bitterly cold wind blowing with more or less violence from the north-east, the sky being frequently overcast with heavy clouds, threatening us with showers of snow and rain, which thus far have not fallen. To this remarkable dryness of the air we owe the safety of the blossom up to the present time, but we anxiously await the result, and if the wind would change to a warmer quarter gladly should we hail genial showers then, for the fruit crop would probably be saved. Meanwhile we wait, watch, and learn something too, for with the bulk of the trees in full bloom anything approaching thorough protection is out of the question. Some blossom upon the tops of espaliers has perished from the combined effects of wind and frost, but upon every other part the healthy hue of the pistils show that the blossom has sustained no real damage, though it has apparently so repeatedly been upon the verge of destruction.

Fruit blossom, as a cultural result, is for that reason alone an important study; in it we have before us now the results of years of thoughtful care, offering to us one of those precious lessons of the seasons which we may well strive earnestly to master fully. A healthy fruit tree with a due proportion of blossom on every branch is an admirable illustration of well-balanced vigour, resultant either from judicious pruning or an entire absence of it. So regarded, the question naturally arises, Why do we prune a tree if it can be brought fully into fruit-bearing without it? The obvious answer being that we prune to accelerate the development of fruit buds, and to restrain the growth of the tree within a given space. If upon inspection now we find that our pruning has not in any or every instance led to satisfactory results, let us at once compare the condition of the faulty tree with that of any sound one in full bloom, and learn by force of contrast the cause of failure.

Excessively vigorous growth is a cause of barrenness, and must be checked in a hard-pruned tree to induce fruitfulness. Mark such trees now either for lifting or root-pruning next autumn, such a decision now enabling us to know the amount of such work, and to make arrangements for its being done early and well. To show that vigour is the cause of barrenness, and how easily it may be checked in any part of a tree, I may mention an experiment in my own practice. A pyramidal Zéphirin Grégoire Pear tree bearing very little

fruit and making excessive lateral growth, had the whole of the top branches left unpruned, the pruning of the lower branches being continued regularly, with the singular result of little wood growth in the unpruned branches, which soon became crowded with clusters of fruit buds, while the lower branches became even more vigorous, and remained barren of fruit. As an application of this lesson, the tops of several lofty pyramids both of Pears and Apples in full bearing were left unpruned, with the satisfactory result of a short growth well set with fruit buds, the lower pruned parts also continued perfectly fruitful. In another experiment the strong flow of sap was checked by twisting a wire round the stem of a Plum tree with the same result of little wood growth and plenty of fruit in the upper branches, and vigorous unfruitful growth in the lower ones. How repeatedly has it been said that nothing can prevent a tree from being most vigorous at the top, yet these experiments prove that it can be done with ease and certainty. An undue amount of vigour is, however, best restrained, or rather corrected, by judicious root-pruning, and we may now gather useful knowledge by an inspection of trees so treated one, two, or three seasons ago; the trees showing clearly that a complete change from barrenness to fruitfulness is not effected in a single season, but it is a work of gradation—a few fruit buds this year, more next year, and so on to a full crop.

Unpruned trees, or rather trees with growth only thinned and not restricted by pruning, are also an interesting study now. Dwarfing stocks induce early fruiting, and Pears on the Quince, Apples on the Paradise, and Cherries on the Mahaleb stocks may be planted thickly and left unpruned in a shallow soil. Cherries appear to wear out early under severe pruning or become shy of fruiting. Of losses under hard pruning I may mention Morello and Kentish, a tree or two of the first dying occasionally under it in any soil; of the last, all the trees which I have had in a thin soil failed, but others left entirely unpruned continue healthy and fruitful. A row containing a dozen different sorts of Cherries well illustrates the effects of pruning and non-pruning. The trees were planted thirteen years ago, and were kept carefully pruned and trained; in due course they came into fruiting, the yield being abundant and fine, and the trees were then as handsome, healthy, symmetrical pyramids as could be desired. But the promise of successional full crops of fruit was not fulfilled; the spurs soon gave signs of incipient decay, and the trees were gradually changing into a sickly barren condition. Close pruning was the apparent cause, and it was discontinued; with a free unchecked growth health returned to the trees.

Two of these may be specially selected as remarkable examples of the beneficial effects of this treatment. Belle Magnifique is 18 feet high and 13 feet in diameter at the base; most of the last year's growth is about a foot in length, some shorter and some longer; but it is all sturdy and robust, and the entire tree is just now such a cone of floral beauty as is not often seen, every branch and shoot being thick set with blossoms. From the bright red colour of its fruit it may be termed an improved Kentish, and like that good old sort it makes an excellent jam and is useful for all cooking purposes. Belle d'Orleans was never seen at its best under close pruning; its large foliage kept the interior of the pyramid so much shaded that the spurs there all died. Since it was left to grow unchecked it has quickly assumed the proportions of a tree, its great strong branches spreading upwards and outwards so fast that it is twice the size of Belle Magnifique, and it has entirely grown out of the pyramidal form at first imparted to it. It, too, has been wonderfully full of blossom and the fruit has set thickly, but it has been tried so severely by frost and wind that I am as yet uncertain about the crop. It is an excellent early Cherry, ripening in June, and the fruit is a delicious addition to the dessert, being very sweet, tender, rich, and juicy.

The attempt to train Belle d'Orleans Cherry as a pyramid

was clearly a mistake, and I must own it was done through ignorance of its peculiar habit of growth. I mention it particularly to show the folly of laying down hard-and-fast rules of culture indiscriminately. The tree proved unhealthy and unfruitful under restriction, and it was left unpruned; but because this hint from Nature was turned to account, there is no intention of laying claim to having originated an extension system. Let us have a little more common sense in fruit culture, striving to ascertain the requirements of each variety that may appear worthy of cultivation, for without close observation we run much risk of going wrong. Nor can one case be taken as a safe guide for another, however close the apparent resemblance may be. Because a strong-growing Cherry would not bear pruning it by no means follows that other exceptionally robust fruit trees may not be pruned advantageously. Hardly any sort of Plum is more vigorous than Rivers' Early Prolific, or any Apple more so than Warner's King, yet both bear close pruning perfectly, and yield crops of remarkable abundance under it.—EDWARD LUCKHURST, *Sussex*.

TEA ROSES IN WINTER AND SPRING.

No flowers are so much appreciated during the winter months as Violets, Lily of the Valley, Carnations, and Roses. These may be called common flowers in the sense that everybody grows or knows them. They are, moreover, old-fashioned, naturally sweet, and with a degree of sentiment attached to their very names. If we may place credence in Byron, Roses in December would have been in his day as surprising as snow in the middle of summer. In our time the difficulty is not so much in obtaining Roses in the last month of the year as in the first one, yet when properly managed and with appliances to do so a good supply of Roses even in those six dull weeks following Christmas is not impossible.

One of the most necessary appliances is a properly constructed and sufficiently heated hothouse in which to grow the plants during the winter season. I have grown them successfully in a low propagating pit, and others with a will to do so will doubtless find a way to produce a few flowers even where no specially appointed structure is set apart for their growth; but it may be at once stated that makeshifts in this particular instance are not to be depended on. The flowers are valuable, so that those desirous of a winter supply of Roses will find it the best and cheapest way in the end to erect a structure for their culture in the same way as they do when they desire a supply of home-grown Grapes, Orchids, or other garden produce. The structure in which our Roses are grown is a very simple one yet perfectly efficient. It is a low span pit over 40 feet long, about 13 feet wide, with a central path, with walls on each side, which support a bed of soil, ashes, and gravel, on which latter the pots are placed. The pit is heated by three rows of 4-inch hot-water pipes down each side, and ventilation is by wooden shutters at each side. During the darkest weeks a stage is erected on which the plants are placed, and thus brought quite close to the glass, a matter of great importance in January.

I find, however, that the plants require to be grown under glass during the summer months as well, and as our forcing pit can be put to more important purposes during summer and autumn a summer house for the Roses is also necessary. We are here, again, content with a very ordinary affair indeed. Some old water-tight sashes are fixed at the back to a previously existing wall, and in front rest on a plate supported by ordinary wooden paling stakes. A few rough boards with a ventilating shutter form the front, and boards and a door the ends, and we have an excellent quarter for our Roses to pass the period of their preparation and rest for winter.

The Roses remain to be considered. We cannot take a catalogue in hand, mark off the varieties, and then after planting wait results. Strict selection must be the rule. The plants must not only be free-blooming, but they must continue in flower until cool-house plants or those on walls commence a supply. Strong-growing varieties like Gloire de Dijon, Reine Marie Henriette, and Madame Berard must at once be decided against, and sorts like Souvenir d'un Ami, Jean Ducher, Madame Willermoz, Madame Falcot, Catherine Mermet, and Niphetos selected. For my own part I grow very few varieties. Niphetos is decidedly the best winter and early spring Rose. Madame Willermoz is more floriferous, but otherwise not so fine. Madame Falcot, Isabella Sprunt, and Safrano are too small. Souvenir d'un Ami I have a personal fondness for; it is to me a very forceable variety of a loveable flower. Bouton d'Or is very good for mid-winter, the buds being plump and clear yellow in colour.

Beginners ought to secure plants without delay in order to have

them as strong as possible before the next forcing season. Those on their own roots are best, but difficult to purchase, at least I have found that to be the case. Small established plants in 4 or 5-inch pots should be selected. These will most likely, in fact are certain to be, root-bound, and the first thing to be done is to shift them into 6-inch pots; then place them in a cool house, which becomes fairly warm in the daytime, and encourage all strong shoots which may start near the base of the plant to make all the growth possible, and as it progresses cut out all the weakly growths. I should hesitate about cutting any growths off until the young shoots have made a good amount of foliage. I have found severe pruning cripple the young plants considerably. The after summer treatment will consist in transferring them into larger pots as required, those 8 or 9 inches in diameter being perhaps large enough for the first year, it being much better to have a smallish pot well filled with small feeding roots than it is to employ those which are too large for the plants to entirely take possession of.

It is hardly necessary to recommend any particular soil, as cultivators are as a rule so much influenced by local circumstances in this respect. A sound open loam, to which one-third of cow manure is added, with a little superphosphate of lime or bonemeal, is the compost I employ. The plants do not root so quickly, nor do they produce such a rapid growth in this as they would in a compost of a lighter nature; but, and this is a point worthy consideration, they produce blooms for a length of time and in numbers which those plants grown in a less holding material do not.

I have now only to note a few points in the treatment of the plants while being forced. They may be either kept rather dry and cool during autumn, and thus rested for a short period, or they may be kept comparatively active all the year round. I have tried them both ways, and am inclined to recommend as little of the drying process as possible.

To proceed now with the winter treatment. We introduce our plants to the forcing pit early in November, and as the stock is freely ventilated until that time the change of atmosphere from a cool and dry one to one that is closer, moister, and warmer at once starts the plants into action. Up till Christmas 55° to 60° is a suitable temperature, from Christmas to the middle of February an extra 5° of heat is advantageous. In our pit, which is not closely glazed, no ventilation is given until the sun in March makes it necessary. As we have no top ventilators to cause cold currents of air, so mildew is almost entirely absent. I have seen it through the winter, but it had to be looked for. Later plants growing in cool houses it is almost impossible to keep free from mildew, but with forced Roses we have no trouble.

The general winter treatment consists in cutting every bud directly it is open enough to be removed, and if the shoot the bud has been growing on is weakly that is also removed at the same time. The plants require examining two or three times during the winter, and all the growths which have flowered and which are not required to produce young shoots are removed. This is a very important matter where a long-continued supply is desired, for if this system of pruning is not carried out young growths healthy and strong will not be produced from the basal buds of the former growths. When the plants are in full free growth manure in some shape is very necessary. Roses of all flowers will not live and thrive when starved. About the middle of April the plants should have a final thinning, and any strong growths duly staked and allowed room for development. Free ventilation and much less fire heat are the conditions to be observed after this. Repotting may also be seen to now, so that the plants are established before being placed in their summer quarters in May.

I may conclude by recommending such strong varieties as Gloire de Dijon, Cheshunt Hybrid, the beautiful crimson Reine Marie Henriette, and Maréchal Niel as giving the best returns when planted out and trained to pillars, or, better still, to wires on the roofs of cool houses. The flowering growths of the one season should be cut completely away, and young growths which are freely produced trained to take their place the succeeding season.—R. P. BROTHERSTON.

ONIONS—THINNED AND NOT THINNED.

SOME growers make it part of their annual work to begin thinning their Onions as soon as they are a few inches high, and do so occasionally until the plants are from 6 inches to 1 foot apart. If the soil and position are good this is a sure way to obtain fine bulbs, large, and well shaped; but further than this thin-growing has no advantage. An excessive weight of crop is not secured in this way, and large bulbs never keep so long sound as small and medium-sized ones. Of this I have had many proofs, and anyone may satisfy themselves on the point. For exhibition the bulbs must have plenty of space to develop, and when this is stated the whole of the advantage of much thinning and thin-growing has been named.

Unthinned crops are by far the most profitable. The seeds of these are sown thinly to begin with. There is no labour spent in thinning.

There are no hundreds or thousands of young plants pulled up and thrown away, but all are allowed to grow and form bulbs. Some of these, where the plants are thin, may be a few inches apart, and form bulbs 10 ozs., 12 ozs., or 14 ozs. in weight each; others may be closer, and the bulbs may be so crowded together that the majority of them may not become larger than a hen's egg; but what size more useful than this could anyone desire to keep until winter and on throughout the spring? When unthinned the weight of crop and quantity of bulbs secured from even the smallest piece of ground is astonishing, and as I have practised the system for some years against others, I can thoroughly recommend non-thinning as the best way of securing a large quantity of the most useful bulbs.—J. MUIR.

NOTES ON ORCHIDS.

CATTLEYA SKINNERI.—This most useful and free-flowering Orchid is in fine condition at Elmer's Lodge, Beckenham, the residence of John Goddard, Esq. In a small house something like 430 blooms and buds are to be seen. The plants are mostly in 32-size pots, and have on an average three flowering growths, some spikes carrying from six to eight of its beautiful rose-purple flowers, many being very rich in colour. They are growing in more heat than is generally recommended for this plant, together with fine healthy masses of *Lælia anceps*, on which forty blooms were open some time since. They receive no particular treatment, being potted in fibrous peat and supplied liberally with water during the growing season. In a cool house I noticed some good plants of *Odontoglossum stelligerum* with sixteen branching spikes, also good forms of *Cattleya Mendelli*. Of *Oncidium tigrinum* I measured pseudo-bulbs 8 inches in circumference, which produce splendid spikes in their season. All alike seem to be thriving under the care of Mr. W. Reed, the energetic and hard-working gardener.

PRUNING DENDROBIUMS.—I cannot see any advantage in this system. A plant of *D. nobile* in our own collection was neglected and not properly ripened, consequently it made a lot of young growths where the flowers should have been, with aerial roots. These were taken off and potted in the spring. They made small growth the first year, but much finer the second season. The old pseudo-bulbs were not more than from 6 to 8 inches high, but produced growths the next year 2 feet 6 inches long, proving to our satisfaction that they must draw support from the old ones, as was apparent in both instances, or why were the growths so weak and short before and so much stronger afterwards? My opinion is that while these young ones were drawing on the support of the old pseudo-bulbs, those in their proper place at the base were being robbed of the nourishment, and consequently small. *D. Dearii*, I believe, will produce good flowers for years on the same growths, and should never be cut out till dead. We have *D. thysiflorum* blooming on growths which have flowered two years previously, although they are comparatively withered. Had these been cut out it would have been a loss of from thirty to fifty flowers each. *D. densiflorum* and *D. Farmeri* frequently bloom on the old pseudo-bulbs. We have also had imported *Dendrobies* make a good growth before commencing to root. Does not this prove that the young growth is partly dependant on the old?—G. W. C.

DENDROCHILUMS.—I find that these plants are much less happy in the East India house—where from their native habitat one might expect them to thrive best—than they are when grown along with some *Odontoglossums* and *Cattleyas*. We possessed several fine plants of *D. glumaceum*, the graceful plume-like hay-scented species, and thinking that by giving them stove treatment they would increase more rapidly, we placed them along with the East Indian Orchids. The result was exactly opposite to what we desired, and it was only by drying them for a time and then cutting away all the worst portions and placing what was left in the *Cattleya* house that we saved them from certain death. The newer species, such as *D. Cobbianum* and *D. filiforme*, are equally well suited in the *Cattleya* house. Although not possessed of any showiness, these Orchids, from the delicacy and grace of their flower spikes and their fragrance, deserve a place in every large Orchid collection.

CYPRIPEDIUM NIVEUM.—Few growers are successful with this gem among Lady's Slippers, and judging from what I have seen, and my own experience in its cultivation, the cause of failure is not far to seek. Most of the *Cypripediums* prefer a shady corner in the warm house and a light peaty soil about their roots. *C. niveum*, however, is exceptional in these two particulars, as it thrives well only when planted in pure strong loam, and when placed on a shelf quite close to the glass, where all the light possible, minus direct sunshine, can reach it. Under

this treatment our plants are very satisfactory, and a large batch at the Clapton Nurseries, which is treated in a way similar to that advised is, in the strength and health of the foliage, a still further proof of the fitness of the treatment.

SOPHRONITIS GRANDIFLORA.—Although this precious little Orchid may be well grown in pans, it never looks so well as when fastened on to a short portion of Thorn or Apple branch with the bark left on and imbedded in a good layer of healthy sphagnum. Grown thus it may have a good bath daily without any risk of sourness through overwatering, and when thickly studded with its brilliant flowers it looks much more natural, more at home, than such a plant can look when planted in a pot or pan. Hung up near the glass on the shaded side of the *Cattleya* house, its little pseudo-bulbs and thick fleshy leaves are ever developing, while the roots go on creeping round the block as freely as one need wish to see who hopes for a good crop of bloom. Never grow this plant in a high temperature, or, rather, do not try to do so, or failure is sure to follow. There is a great difference in the size of the flowers of different plants of this Orchid. I have seen some nearly 3 inches in diameter, whilst others are barely an inch. They are, however, all beautiful, for beauty does not go hand in hand with size, as too many of our Orchid fanciers seem to think.

CALANTHES.—I would advise anyone not well up in *Calanthe* management not to be in a hurry to start their plants by bringing them into a warm moist house. Too early a start often means weakness and spot before the new growth gets well away. If the pseudo-bulbs have been kept in a dry house or shed where the temperature has not exceeded 55° or 60° they will still be dormant, and the longer they are allowed to remain so the better the new growth will be. When they are ready the pseudo-bulbs will of themselves show signs of activity, and then will be the time to prepare the rich mixture of loam, peat, and manure, and pot the plants.—W.

PRUNING DENDROBIUMS.—I am much obliged by "B.'s" reply this week, which is most interesting, because it records the fact of *Dendrobium nobile* blooming freely on the last year's pseudo-bulbs in the same manner as *D. Wardianum*—a most unusual circumstance, for its common habit is to flower on the two-year-old pseudo-bulbs, and it is so described by authorities on Orchids. I have pruned our *Dendrobiums*, of several sorts, for several years without doing the plants the least harm, but have not got the last-formed pseudo-bulbs to bloom yet, so far as I recollect. I have, however, looked critically into one plant to-day, and have found one pseudo-bulb of last year's growth, 1883, pushing out a few flowers, one or two just bursting through the winter bark. The plants flowered freely some time ago on the two-year-old pseudo-bulbs, and have been pruned and started, and these flower buds have pushed since. It would be interesting to know if the flowering of "B.'s" plants on the new bulbs is in any way due to pruning?—J. S.

TYING DOWN VINE SHOOTS.

TYING down the laterals of Vines is like everything else—easy enough when experience has taught the way; but beginners have often to learn at the expense of the Vines. Perhaps a few lines on this subject may not be out of place at this season of the year, when much of that sort of work has to be done. First of all I would say, Do not be in too great a hurry to tie down the laterals to the wires. If taken down when too soft they immediately begin to twist and distort themselves. If the vinery is built at such an angle as will allow of the laterals remaining free till ready to be permanently tied down so much the better; but if not, they should be gradually drawn down and secured with raffia till such time as they can be laid down to the wires and firmly tied. Another thing is, Never be afraid to use the raffia; it is cheap, and strong pieces should be used, so that there can be little chance of the annoyance of seeing shoots broken down by the weight of the bunch or the swelling of the lateral having burst the tie. When cutting the raffia after tying do not cut it too close; leave half an inch of the ends. This may seem a small matter, but it is worth attending to. When cut too closely the swelling of the lateral sometimes forces the tie loose, and consequently down come the shoot and bunch. Attention may be given to those laterals having bunches on them, in order that they may have extra strong and secure ties, those not having bunches being able, of course, to do with slighter ties; but raffia is so cheap that most people can afford to give all their Vine shoots a strong tie.

When bringing the lateral down to the wire, take firm hold

of it and bring it down steadily; no jerking should be indulged in, as the consequence may be that the shoot parts company with the main stem. Some varieties of Vines are more difficult to tie down than others. Black Alicante is often very troublesome to get down, being when in rude health very strong and brittle. When such is the case they should be left as long a time as possible, even till they are just coming into flower. By that time they are generally tougher and will endure being handled. Gros Colman, Lady Downe's, Muscats, Hamburgs, Muscadines, Sweetwaters, and many other varieties can all be handled freely in ordinary circumstances.

Sometimes, however, when Black Hamburgs come very strong they require a gradual process, and must be slung to the wires before they can be finally brought down. When tying above a bunch the tie may be made tighter than when below, as due care must be taken not in any way to impede the flow of nourishment of the bunch.

Vine shoots often swell considerably after being tied down, and allowance should be made for that, especially when, as remarked above, the tie is below the bunch. A twist of the raffia round the wire prevents the tie slipping along, as it will sometimes do when such is not done. All shoots should be as far as possible laid down to a wire that will bring them at right angles to the main stem.

When Vine rods are too crowded this cannot easily be done, and I have seen many places where the laterals were tied close in alongside the main stem, giving the Vines not half the chance they should have of getting this wood well ripened.

If these lines give confidence to any about to begin to tie Vine shoots for the first time the writer's object will have been attained. Those who know by experience all about it will still be candid enough to confess that there was once a time when they felt nervous about tying Vine shoots.—VITIS.

BERTOLONIAS AND SONERILAS.

THE beautiful markings of the foliage of these little Melastomads is not excelled by any of the large number of ornamental-leaved plants at present cultivated in our gardens, and is only equalled by the choicest of those pretty little Orchids, the *Anætochili*. These latter, however, from their being so exceedingly difficult of cultivation, might with some reason be excluded from the list of useful garden plants; whereas the requirements of the Bertolonias and their cousins the Sonerilas are simple enough to be within the reach of everyone who possesses a stove. When in good condition the rich veinings of the Bertolonias never fail to win admiration, and especially may this be said of *B. Van Houtteana*, of which the thin almost transparent leaves are covered with a close network of a deep rose colour that, owing to its crystallised surface, sparkles in the sun like the colours of beautiful birds. Nature would appear to have exerted herself in the painting of these leaves, for it would be difficult to find any plant in which her choicest handiwork has wrought with more pleasing effect. In addition to this gem we now possess a number of equally beautiful forms, for almost every one of which we are indebted to the skill in cross-breeding of *M. Van Houtte*, whose labours among these plants have yielded as good results as have been obtained by him in the improvement of the Gesneriads.

One of the most beautiful of the seedling Bertolonias is *B. Gibsoniana*, which, if such a thing be possible, is even superior to *B. Van Houtteana*. It is marked in precisely the same manner as *B. Van Houtteana*, but surpasses it in richness of colours and in the sturdier substance of its foliage. It is indeed a striking plant—perhaps a little overdone for some tastes. *B. Hrubyana*, another new form, is a silver-veined form of *B. Van Houtteana*; a third new one, *B. Rodeckiana*, is similar to the last-mentioned, with a tinge of purple added. Besides those with reticulated leaves there is a group with foliage thickly studded with white, pink, or bright red spots. Of these the best are *B. albo* and *roseo-punctata*, *B. superbissima*, *B. Mirandæ* and *B. Gladstonei*. It is noteworthy that the whole of these distinct and beautiful varieties are the progeny of *B. guttata*, a dark bronzy-leaved species; *B. maculata*, almost similar to it; *B. marmorata*, and *B. margaritacea*, which were the only species in cultivation some twenty years ago. None of these are so richly variegated as the seedling forms, careful cross-breeding, as in the case of *Crotons*, *Dracenas*, and *Coleus*, having brought out colours which were not shown in the original species.

Sonerilas are pretty little herbs not more than 6 inches high, but when in good health grow rapidly in a horizontal direction by means of their freely produced axillary branches or

stolons. Their rather fleshy leaves, which are oval in shape, and most of them some 3 inches long by an inch in width, are green or bronzy, and are blotched or spotted more or less thickly with a sparkling silvery variegation. Jewel Plants they have been called, and well they deserve the name, for the foliage of most of them has the appearance of being inlaid with sparkling jewels, rather than showing evidences of a peculiar disease, to which the physiologists tell us all leaf-variegation must be attributed. In some of them the spots run into each other, so that almost the whole surface of the leaves is silvered over. *M. Linden* has raised some beautiful forms of *Sonerila*, but has been unfortunate in giving names to more than possess sufficiently distinct characters. The first species introduced into our gardens was *S. margaritacea*, which was exhibited by Messrs. Veitch in 1864. Two other species named *S. speciosa* and *S. elegans*, both of which have green foliage, followed shortly after, along with several others of comparatively little beauty. From these the beautifully variegated forms have sprung, of which *B. Hendersonii*, *Van Houttei*, *Van de Sande*, *Madame V. Alesch* and *Devoisiana* are a selection of the best. In addition to the attractiveness of their foliage the Sonerilas are very pretty flowering plants, producing when properly managed a profusion of little bunches of pink blossoms during the last three months of the year.

The cultivation of Sonerilas is best managed in a close moist stove, where the plants should be suspended in pans or placed upon a shelf near the glass. They require shading from bright sunlight, but are liable to damp if shaded too heavily. A mixture of peat, leaf mould, and sand suits them best, and a liberal supply of water during the summer. It is doubtful whether these plants are perennial, their tendency to die in spite of the most watchful attention after flowering suggesting an annual character. To guard against total loss during winter it is necessary that a batch of cuttings should be struck late in the autumn, and as these would most likely perish along with the old plants if allowed to bloom, care should be taken to pinch out the little bunches of flowers as they appear. A position on a shelf in a not over-moist stove is the safest quarter for these young plants until the winter is over, when they will require repotting and treatment similar to that advised for summer growth. The prettiest plants I have seen were grown in pans hanging close to the glass in a moist unshaded stove. Each pan contained half a dozen plants, which were in 3-inch pots and placed in the pan with sphagnum moss about them. Thus treated the growth they made was sturdy and the foliage well finished; but it was the extraordinary production of bloom consequent on this treatment that proved its success, the whole pan looking like a closely packed bouquet of bright pink flowers, which hung over the sides of the pan so as to almost cover it.

For the management of Bertolonias the same kind of treatment as that recommended for Sonerilas will be found to answer, with the exception of the amount of light, the Bertolonias requiring more shade and as close an atmosphere as possible. In large airy structures it is advisable to place these plants under a bellglass, which should be tilted or, better still, should have an open top—a kind of bellglass which for purposes of this kind is preferable to that usually in use. Singularly enough, if kept in a dry atmosphere the leaves of these plants suffer from what is called damp, but what is really the result of wrong treatment, which weakens the foliage and makes it susceptible to decay under the slightest change of temperature or atmospheric moisture. Being natives of the moist tropical forests of Brazil, where they grow in the light *débris* under the shade of the trees, it will be apparent how essential to their welfare in our houses a moist atmosphere and plenty of water at the root must be. Bertolonias may be propagated by means of cuttings inserted in small pots in sandy peat and placed in a close frame until rooted. The most favourable season for this is of course the spring. By pegging on to a pot of sand any of the strongest leaves a quantity of young plants may be raised, as these plants form little bulbils on their foliage in the same way as *Begonia* or *Gloxinia* leaves do. If allowed to flower seeds are frequently matured, which if sown and treated like *Gloxinia* seed germinate freely and often yield new varieties.—W. W.

YARD MANURE AND WOOD ASHES.—I have been asked to state the comparative value of unleached wood ashes and barnyard manure for Apple, Peach, Pear, and Cherry trees, also in regard to composting the two. Barnyard manure varies to so great an extent that it is impossible to place a standard price upon it. What it may be worth depends upon the kind and condition of the animal, the nature of its food, the relative amount of litter mixed with it, and the amount of soluble materials removed by rain, &c. For this discussion I will take fresh horse dung as a standard, the horse having a mixed feed of one part Oats and three parts

meadow hay, the dung being free from all stable litter. This dung contains 75 per cent. of water, $2\frac{1}{2}$ per cent. of ash, and 6-10 of one per cent. of nitrogen. A ton of such manure contains 12 lbs. of nitrogen, worth 2 dollars 40 cents, and 50 lbs. of ash, containing in addition to the lime, magnesia, sulphates, chlorides, &c., 11.6 lbs. of potash, worth 77 cents., and 4.9 lbs. of phosphoric acid, worth 61 cents., or a total value of 3 dollars 78 cents. a ton, estimating these three materials at commercial rates. This calculation is made on the assumption that the phosphoric acid is all soluble in water, and that the nitrogen is as valuable for fruit trees as it is for field crops, both propositions somewhat doubtful. Wood ashes represent all the mineral elements of vegetable growth, and contain everything the farmer must give his crops except combined nitrogen. Wood ashes will vary in composition and value with the kind of wood and the part of the tree. I will take the ash of the body wood of the Beech tree as representing the average of wood ashes. A ton of such ashes contains 320 lbs. of potash, worth 16 dollars, and 105 lbs. of phosphoric acid (insoluble), worth 5 dollars 25 cents. Omitting all the other ash constituents, which have some value of themselves, the potash and phosphoric acid of a ton of such ashes are worth 21 dollars 25 cents, or nearly six times the value of a ton of fresh horse dung. For orchards I regard ashes as worth more than six times the value of barnyard manure, ton for ton. When barnyard manure is composted with wood ashes the coarse vegetable material and litter are rapidly broken down, and the manure is speedily fitted for use; but there is some loss of nitrogen in the form of ammonia, but there will be no loss of mineral matter if kept from leaching by water.—Dr. R. C. KEDZIE, *Michigan Agricultural College* (in the *New York Tribune*).

CACTACEOUS PLANTS.

(Continued from page 321.)

IN addition to the species of *Echinocactus* already noted the following are worth attention:—

E. MYRIOSTIGMA, S.D. (*Astrophytum myriostigma*).—Though in many respects this is totally distinct from the Hedgehog Cactus, yet botanically it has been found to be so nearly related to that genus that they could not be separated satisfactorily. It is very peculiar, and at a glance appears to be scarcely a living plant, so regular, rigid, and unplant-like is its form, that we might almost imagine it had been carved from a piece of stone. It seems to be an even greater departure from the forms of plant life with which we are most familiar than other *Cactææ*, strange as they are, for all vestiges of leaves or branches are lost, the spines and tubercles, their representatives in other species, have in this one disappeared, and the stem is bare except for some curious star-like scales or hairs. It forms a marked stage in the evolution of the genus, and appears to be the opposite extreme to the *Mamillaria*-like species with prominent tubercles, between which almost every gradation can be found. The stem is seldom more than 6 or 8 inches high, 3 to 5 in diameter, and has five or six broadly triangular ridges 1 or $1\frac{1}{2}$ inch deep, with an even surface and edge devoid of spines. Upon the surface are a number of small grey or whitish flattened scales or hairs, which are thickly placed on the young growth, but fall off as the plant advances in age, and the lower part of the stem is sometimes quite bare. The flowers are produced near the summit of the stem, generally several together, which open early in the day and close in the afternoon from four to five o'clock, expanding on each succeeding day for nearly a week. Plants will also continue bearing flowers from June to September.

The scales above mentioned, when examined under a microscope of moderate power, are seen to consist of small hair-like filaments radiating from a central very short stalk. Appendages of this character are seen in few members of the family, and occurring as these do in the absence of the clusters of spines, it might almost be thought that they were debased forms of these. Against that fancy is, however, the fact that the scales are dispersed over the whole surface of the plant, and appear to be merely superficial, being easily removed with the finger-nail.

E. PFEIFFERI, Zuccarini.—A bold handsome species, which at once attracts notice in a large collection, and is well worth a place in a small one. The stem is intermediate between cylindric and globular, usually 1 foot high, 9 inches in diameter. The ridges are $1\frac{1}{2}$ to 2 inches deep, and $1\frac{1}{2}$ inch across at the base, triangular, deep green. The clusters of spines are 1 inch apart, and contain several yellowish-white rigid, semi-transparent spines about 1 inch long. In the Oxford garden is a beautiful specimen of this 2 feet high, one of the finest in this country.

E. SCOPA, Pfeiffer.—The Broom Cactus is a popular name applied to this *Echinocactus*, and it is an appropriate title, for the ordinary form is suggestive of a close birch broom, or more correctly the circular brushes employed in sweeping chimneys. It is extremely distinct, and by no means wanting in beauty of the Cactoid type. The stem in most cultivated specimens is cylindrical, 4 to 8 inches high and 3 to 4 inches in diameter, but it attains the height of a foot or more, upon which the numerous small ridges, thirty or more, are very closely set, and these in turn bear extremely abundant thickly set purple hairs, which cover the plant so densely that the surface is scarcely visible. The flower is neat in form, 1 to 2 inches in diameter; the petals narrow, serrated at the point, pale yellow, with bright crimson stigmas. It is a native of Brazil, whence plants or seeds were sent to the Continent early in the present century.

E. SCOPA CANDIDUS CRISTATUS.—This is one of the most extraordinary of the numerous monstrous forms that have been obtained from seed in the Cactus family. It is also one of the most beautiful, and, though rather delicate, it well deserves the little extra attention needed to keep it in health. No one would think for a moment that it is related to the species named above, for it has undergone a most peculiar change. Instead of the regular symmetrical cylindrical stem it has become contorted, flattened, and irregularly twisted like the fasciated crest in the common Cockscomb. The surface is densely covered with small white tufts about the size of a large pin's head, from which arise numerous diminutive white hairs one-eighth of an inch long or less, and on the edge of the flattened lobes is a distinct furrow, which

follows the twisting stem in each direction. In the sun the plant has a silvery appearance, which is very beautiful, but to preserve this dust or dirt of any kind must be carefully excluded from it. It is rather slow-growing, but succeeds best when grafted on a short stem of some *Cereus*, such as *C. Baumannii*, *C. macrogonus*, or *C. peruvianus*, and less difficulty is then experienced in keeping it in good health.

B. SIMPSONI.—This is especially deserving of notice as one of the hardiest of the genus, for it has been tried out of doors in some districts, and has endured very low temperatures uninjured. It is said to be found farther north than any other *Echinocactus*, in Colorado at an elevation of 8500 feet, or still higher in more southern districts. The tubercles are loosely arranged, half to three-quarters of an inch long, with several white spreading spines and a central yellowish one. The flowers are purple or rose, rather small but numerous on the upper part of the stem. The plant is dwarf, rarely exceeding 6 or 8 inches high, and usually much less, and was introduced by Messrs. Backhouse several years ago.

E. VISNAGA, Hooker (the Toothpick Cactus).—Not only is this the most remarkable in its own family, but in some respects it is also one of the most peculiar in the whole vegetable world. Quite a sensation was created when in 1846 this extraordinary plant was first described by Sir William Hooker, in

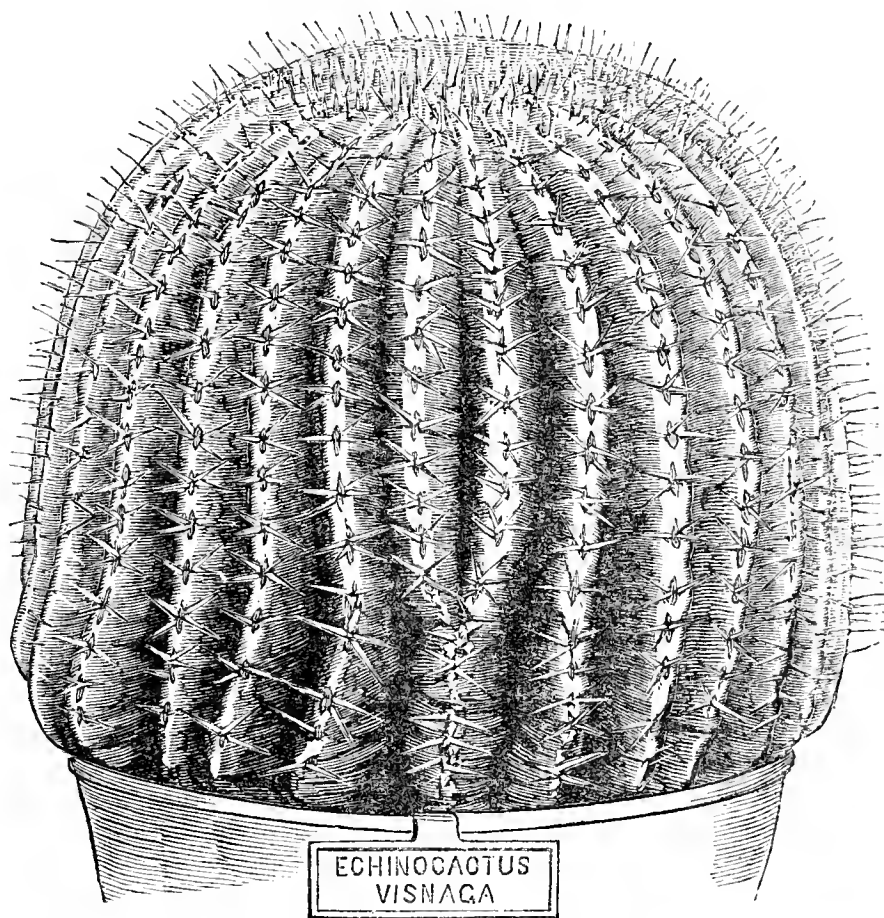


Fig. 82.

the *Illustrated London News*, and the particulars were published of the enormous weight and size which this species attains in its Mexican home. To F. Staines, Esq., of San Luis Potosi, is due the honour of introducing the first specimens to this country, which, however, was only effected after much labour and repeated trials, as the plants had to be conveyed many hundreds of miles across a most difficult country, with very rough roads, or in some parts none at all, and the only vehicles that could be employed were large waggons drawn by mules or oxen. The plants grow in deep ravines of the loftiest

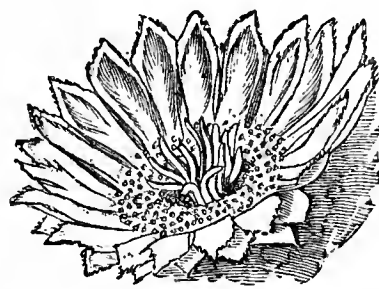


Fig. 83.—Flower of *E. Visnaga*.

mountains of the district amongst large stones and rocks, with very little soil; but there they reach an enormous size, and being very slow in growth it is reasonably supposed that some of the largest must be several hundred years old. The finest specimen yet sent to this country was 9 feet high, $9\frac{1}{2}$ feet in circumference, and weighed 1 ton; but it died after it had been at Kew about a year. Smaller but still wonderful examples were subsequently sent, the principal weighing about 713 lbs., was 4 feet 6 inches high, the longitudinal circumference was 10 feet 9 inches, the transverse circumference 8 feet 7 inches. This also has been lost, and there are now few large plants in cultivation, the two handsome specimens which so long formed a standing attraction in Mr. Peacock's collection having been lost a few years since.

The stem is cylindrical, with forty to fifty ridges, upon which the pale brown sharp rigid spines are closely set in clusters of four, 2 or 3 inches in length, and these, it is said, are used by the Mexican settlers as toothpicks. The flowers are borne at the summit of the plant in a dense woolly substance; they are 3 inches in diameter, with narrow petals serrated at the apex, and bright golden yellow in colour. The name *Visnaga*, or *Bisnaga*, is considered to be a corruption of *Bisacuta*, twice-pointed, or sharpened on both sides, in reference to the spines.

The woodcut, fig. 82, has been prepared from a photograph of one of Mr. Peacock's fine plants, which unfortunately have been lost now. These were about 2 feet high and as much in diameter, and continued in vigorous

health for several years, but ultimately were damaged by a "drip" from the roof of the house, and rapidly decayed, despite the care exercised to prevent it.—L. CASTLE.

CULTURE OF STRAWBERRIES.

FORCED PLANTS.—In most forcing establishments a planting of forced Strawberry plants is annually made out of doors in a good well-prepared piece of ground in rows 2 feet apart and about the same distance between the rows, and an equal number of old plants destroyed as soon as the crop has been gathered from them. The earliest forced plants of Vicomtesse Héricart de Thury, having been properly hardened when removed from the forcing house, should now be turned out of their pots and the balls of earth and roots be slightly reduced, repotted in clean and properly crocked pots. They can then be plunged to the rim in a warm border, either in coal ashes or the ordinary soil, until the approach of frost, when they should be taken up, the pots washed and stood on the shelves in an airy house, where a little heat can be turned on when necessary to ripen the fruit. During the interval the soil should not be allowed to become dry, and a sprinkling over the foliage with the syringe in the evenings during hot weather will keep it fresh and clean. From the time the plants have set their fruits until these begin colouring liberal supplies of diluted liquid manure should be given to the roots when necessary, which will enable them to swell finer fruits than would otherwise be obtained. Plants thus treated will yield—according to the number—a good supply of fruits during September, October, and November, when they are much appreciated for dessert.

In order to prolong the supply of ripe fruits, I should have remarked that it would be necessary to retard the fruiting of a portion of the plants, either by plunging them in a colder aspect or removing the first flower spikes they throw up after being plunged, as also the ripening of the fruit by keeping the plants in houses or pits of different temperatures. Having repotted the necessary number of plants for late autumn bearing, a planting of the same variety should then be made in a warm border, in rows as above recommended, for yielding a crop in August and the early part of September, as also for yielding early runners for layering into the fruiting pots next year. The plants, having had a thorough watering at the roots the preceding afternoon, when turned out of the pots should have the crocks and any bad leaves that may be attached to them removed, and the balls of earth and roots loosened a little all round with a pointed stick before being planted. In planting the soil should be trodden firmly around the plants, and the latter in each succeeding row set diagonally to those in the preceding one, which will afford them more room to develop than when planted opposite. This being done, a surface dressing of short dung a couple of inches thick should be laid on between the rows and plants, which, in addition to stimulating growth in the plants by its virtues being washed down to the roots, will also preserve the latter in a moist growing state.

THE MAIN PLANTING.—This, consisting of such sterling varieties as La Grosse Sucrée, Keens' Seedling, Sir C. Napier, Sir J. Paxton, President, British Queen, and James Veitch, should be made in the way recommended above in a good open quarter of the garden, and if the soil be of a loamy nature, which the Strawberry delights in, the better will be the results. The planting should be done when the ground is moist; and, in order to concentrate the energy of the plants to the development and consolidation of crowns for next year's produce, all runners and spikes emanating from them should be removed. As each variety is planted a long stout label bearing the name, number of rows, and date of planting, should be placed firmly in the ground at the end of the first row. When the plants have borne three crops of fruit they should be destroyed, and the ground, with the assistance of the crowbar, planted with Broccolis. Where forced Strawberry plants are not to be had runners of the respective varieties should be layered into 3-inch pots well filled with three parts good loam and one of horse droppings rubbed through a quarter-inch sieve, the points of these immediately beyond the miniature plants and all runners subsequently proceeding therefrom being removed. The plants, which during the interval must be kept well supplied with water at the roots, may be planted out in well-prepared ground before they become root-bound, choosing showery weather for the work. A planting of late-bearing varieties—such as Elton Pine and Oxonian—should also be made in a north border to supplement the supplies obtained from the earlier-bearing ones.

FRUITING PERIOD.—As soon as the fruit begins colouring some clean straw should be placed between them and the ground to prevent the former being damaged by grit and damp. Failing straw long litter from the stables, which a few showers and exposure will deodorise, or short grass may be substituted.

AUTUMN TREATMENT OF ESTABLISHED PLANTS.—As soon as the crop of fruit has been gathered, and the plants for forcing next year sufficiently established to be removed from the parent plants, all runners and dead leaves should be removed, and a good surface

dressing of short dung laid on between the rows and plants. This will protect, as well as benefit, the roots which are near the surface from the effects of frost. The practice of digging between Strawberry plants—happily now almost a thing of the past—cannot be too strongly condemned. The surface of the soil, however, may, with advantage to the plants, be loosened a little prior to the mulching being placed on.

PREPARING THE PLANTS FOR FORCING.—The first step to be taken in this direction is to obtain the necessary number of 32 and 24-sized pots—only a small per-centage of the latter for late varieties—and well crock them by placing a large piece of crock over the hole in the bottom of the pots, then a couple of inches of two or three smaller sizes (the smallest pieces being placed on the top), over which sprinkle a handful of new soot, and over that a few rough pieces of loam or leaves. This being done, fill the pots to within an inch of the top with similar soil to that recommended for the 3-inch pots, ramming it in firmly together as the work proceeds. The pots should then be taken to the Strawberry quarter and placed so as to reduce the chances of the runners being displaced in the process of watering the plants and gathering the fruits to a minimum. The runners, as already stated, should be layered in the centre of the pots as soon as large enough to handle, and secured there by means of small crooks—one to each plant—sufficient of which should be made beforehand out of old besoms on wet days. The best runners should be selected, and the superfluous ones cut away as the work of layering proceeds. The plants thus layered should be watered every afternoon during bright weather; this, in addition to keeping the surface of the soil moist (which is all that is needed until the roots have pushed into it), will keep the young plants clean and fresh. As soon as they have become sufficiently established to admit of their being severed from the parent plants they should be removed to a favourable situation, where they will be well exposed to the sun, and stood, not too closely together, on sifted coal ashes or on the brick walls enclosing Vine borders. From this time until the plants have completed their growth they should have liberal supplies of diluted liquid manure or weak guano water at the roots, and all runners and any small crowns that may proceed from the original and principal ones removed as soon as they appear. The pots should be plunged to the rim in coal ashes in a dry situation on the approach of frost, whence they can be taken to the potting-shed to be top-dressed, &c., and thence to the forcing departments as required.—H. W. WARD.

VIOLETS.

In answer to your correspondent "E. P." (page 324) I would advise him to treat his plants as recommended for frame cultivation during the summer, and in the autumn to lift and plant in boxes of convenient size, so that they can be elevated near the glass, where they will obtain the full benefit of the light, which is essential to the production of flowers during winter. I doubt if he will be successful in his open air cultivation if the climate is as he states it to be, unless he can obtain some frames to protect the plants during winter. Bell-glasses are unsuitable for that purpose, owing to the extremely varying temperatures the plants under them would be subject to. Your correspondent omits to state what variety he grows, and also if his neighbours experience the same difficulty as himself. I rather suspect that he has a worthless variety.—VIOLE.

THE CULTURE OF IMANTOPHYLLUM MINIATUM AND BEGONIA MANICATA.

I THINK a collection of plants far from being complete without this beautiful greenhouse spring-flowering plant. We have a grand specimen of it in the Palm house here. It has been very attractive during the past month, and is now simply perfection. It is planted out in the border, and looks quite at home. The flower scapes are from 2 to 3 feet in height, fourteen in number, and each supporting fifteen to twenty of its beautiful vase-shaped, deep orange blossoms, which are valuable for bouquets and the decoration of the dinner table. Many amateurs are prevented from growing this plant, believing it can only be brought to perfection with a stove temperature, but I am confident it can be grown well in an intermediate house. The plant above mentioned has been growing in a temperature of 50° to 60°. We also grow a few plants for earlier flowering in pots, as they are readily forced into bloom. They are not so particular as to soil. They succeed well in two parts turfy loam, one part peat, one leaf mould, with a good sprinkling of half-inch bones and silver sand. They should be potted firmly, and require careful watering. They are easily increased after flowering by division, which I prefer to seed-raising. They are very ornamental even when out of flower; their long arching sheath-like leaves are of a bright green colour, and contrast well with other plants. *Imantophyllum miniatum* is a native of Africa, and many varieties

have been lately introduced, about which I hope to pen a few notes at some future time.

Another old and useful plant which seems to try and outstrip its neighbour we have in the same border in *Begonia manicata*. Although quite distinct in habit and growth, it will succeed well with the same treatment. It has just produced thirty-five erect branching panicles of light pink flowers. The leaves are large and fleshy, the footstalks of which bear pretty red frill-like fringes. I find the flowers very useful for epergnes or trumpet vases. *Begonia manicata* is also very valuable grown in pots for table decoration or for the conservatory. We take cuttings from the old plants in May for this purpose, and when well established in 5-inch pots they are removed to a cold frame, and with careful attention will make useful plants by September, when they are taken into warmer quarters and brought into bloom as required. They continue in bloom for several months, but the foliage is liable to damp off in spots if too much water be used. It is a native of Brazil.—FOREMAN.



THE HEALTH EXHIBITION.—We are glad to state that by permission of the Council of the Royal Horticultural Society, Mr. J. Douglas Dick has been enabled to accept the appointment of superintendent of the turnstiles during the Health Exhibition, for which such extensive preparations are now being made in the gardens at South Kensington. The importance of this charge may be understood when it is stated that it involves the responsibility of accounting for all the money taken at the entrances, which last year, on the occasion of the Fisheries Exhibition, amounted, we believe, to about £80,000. The satisfactory manner in which Mr. Dick discharged his duties on that occasion has undoubtedly led to his present appointment, and the action of the Council in the matter is a graceful mode of acknowledging the services of an old and diligent official of the Royal Horticultural Society. Mr. Dick's staff numbers about forty men, the extremely wide scope of the Exhibition and its corresponding diversity being expected to prove much more attractive than the event of last year, and provision is being made for a greater influx of visitors.

— IMPROVING THE GARDENS.—The gardens in which the Exhibition just referred to will be held are undergoing a complete transformation, the work of restoring and remodelling being conducted by Mr. Barron, the Royal Horticultural Society's garden superintendent under the direction of the Duke of Buckingham and Chandos, who is working with the same zeal that Mr. Birkbeck displayed last year as the chairman of the Fisheries Committee. His Grace has entered spiritedly into the work of garden renovation, and new lawns and walks are being made, shrubs planted, and everything possible is being done to render the grounds in the highest degree attractive when the Exhibition is opened. The arrangements made for holding the Shows of the Royal Horticultural Society are much more favourable than last year, when the space allotted was in an out-of-the-way corner in the lower portions of the grounds. This year the upper and more attractive portion, with the conservatory, is secured under stipulations mutually advantageous both to the Society and the Health Committee. An active season at South Kensington is anticipated, and the Health Exhibition (with its accessories) is expected to prove a brilliant success.

— MR. G. W. CUMMINS writes that "RHODODENDRON COUNTESS OF HADDINGTON (in company with the grand *R. Aucklandii*) is now a mass of bloom at Cromwell House, Croydon. A plant more than 8 feet through is bearing hundreds of beautiful large blush-white flowers. Himalayan Rhododendrons and Cactæ are the great features of this place, and quantities of both are showing well for bloom, although many other plants are grown well besides under the able management of the gardener, Mr. W. Wright."

— THE STOKE BISHOP AND SNEYD PARK ROSE AND FRUIT SHOW will be held this year in the grounds of W. E. George, Esq., Downside, Stoke Bishop, on Tuesday, July 1st. Twelve classes, open to all amateurs, the remaining thirty-six being confined to residents of the district.

— MESSRS. BARR & SON, Covent Garden, send us a flower of a pretty and distinct double *ANEMONE STELLATA* from seed. The petals are narrow and very numerous, the outer half is bright crimson, then a broad ring of white, and shaded with crimson at the centre. It is very neat and attractive.

— "C. W." writes that "ROSE THE EARL OF PEMBROKE as an early-forcing variety is simply magnificent, producing, as it does most freely, its deep-petalled intense crimson flowers on very small plants, which are not only very distinct in colour from any other Rose, but they also possess a delicious perfume, which makes them doubly valuable. If Mr. Bennett had not raised any other Rose this alone would be sufficient to perpetuate his fame as the most successful English hybridiser of the queen of flowers."

— MR. A. J. SANDERS, gardener to Viscountess Chewton, Bookham Lodge, Cobham, sends us blooms of his double *CINERARIA ROSY MORN*, for which a vote of thanks was accorded at the last meeting of the Royal Horticultural Society. They are very full, of good form, and of a very bright rosy-crimson colour; very showy and distinct.

— MR. J. MACDONALD, The Gardens, Angeston, Dursley, sends us blooms of the *TEA ROSE ADAM*, from a plant of which he states they have been cutting since Christmas. The blooms are of wonderful size, beautifully formed, of a soft rose tint, and the foliage is similarly vigorous, proving most generous culture. This variety is very pretty in the bud stage, but rather loose when fully expanded.

— ONE of the most attractive hardy Heaths that has come under our notice is *ERICA AUSTRALIS*. Growing with some others in the Royal Horticultural Society's Gardens at Chiswick, it surpasses them all in effectiveness at the present time. It appears to be a free grower of compact habit, but not low and dense, the plant now flowering being about 18 inches high and half that in diameter. Every spray is closely covered with dark pink blooms, rendering the plant not only the prettiest Heath in the bed, but the most attractive hardy plant in the Gardens at the present time. Persons intending to plant a collection of hardy Heaths should make a note of *Erica australis*, with the view of including the species in their collections.

— THE first number of the "LITTLE JOURNAL," a new shilling monthly publication, devotes several pages to "Enterprises at Home and Abroad," and to "Workers in all Fields." The field of horticulture is not overlooked, as we find brief and highly commendatory biographical notices of Mr. F. W. Burbidge, F.L.S., and Mr. George Maw, F.S.A. The reference to Mr. Burbidge is brief, amounting simply to an enumeration of his literary works, which are very superior to many that have been prepared during the past few years, and an estimate of his character, and we believe a very fair and accurate one, from the *Nonconformist* newspaper. The article on Mr. Maw is more elaborate; his industry in collecting plants, his scientific attainments and their successful application, his mansion and garden at Bentham Hall, and his literary work being all brought under review in six or seven pages of the work. Under "Enterprises" we find an article by John Arden, entitled "Trees in their Cradle," which consists, we are bound to say, of a rather meagre description of the nurseries of Messrs. F. & A. Dickson of Chester. The "Little Journal" (Elliot Stock & Co.) is a sober work of 128 pages, well printed, variedly interesting, and will be acceptable to those who desire something more than the "light reading" that so largely prevails at the present day. It is stated that portraits would have accompanied the biographical notices, but the "workmen failed" in having them ready.

FRUIT PROSPECTS—EFFECTS OF FROST.

THE prospect of a bountiful crop of fruit has never been better in this district; and although the north and east winds with rather severe drought have prevailed, also severe frosts (7° were registered on one morning last week) the Plum, Pear, and Cherry have and are setting well outside, and Apples have begun to open their blooms. I observe much mildew and blight on the expanding leaves and flowers, also vermin, which will be very troublesome if some heavy rain does not come soon, or the syringe be brought into service with soft soap and petroleum, or, what is still more useful and safer, Hudson's dry soap.

It is both better to syringe before and after with pure water, as it wets nearly all the foliage, so that when the more expensive application is used any injury from careless mixing is avoided, and any sediment left on the trees or foliage, if strong, is rendered harmless.

Except one shower we have had no rain for some weeks, and not much sun either. We have had thunder and lightning more or less for

three weeks, and rain within five miles in plenty.—J. E. W., *Grange-over-Sands*.

THE cold easterly winds with frost on most nights of last week (18° of frost being recorded on the morning of the 23rd of April, on the previous night 10°, and the following 12°), have left their mark on vegetation, many hardy plants that had been stimulated into activity by the previous mild weather having had their tender growths injured.

Pears coming into blossom have had their tops blackened, and Potatoes cut off level with the ground, and other vegetables have suffered proportionately. This is unfortunate, as there is a great paucity of vegetables owing to the mild winter having caused them to run to seed long before the customary time. Fortunately we have fine breadths of Broccoli not injured in the slightest, and wonderfully fine Cabbages, Ellam's being far ahead of all others.

The set fruit of Plums are all blackened, Apricots are for the most part destroyed, and the same remark applies to Peaches and Nectarines. Pears, too, seem in a poor way, and have no doubt suffered severely. Raspberries have had the points of the shoots cut and are quite brown, the most forward of the Gooseberries being blackened, and those but in the flower state I fear are injured, as the bees do not care about them. Currants seem to be better, only the upper part of the bunch being damaged, and Black Currants appear little or none the worse. Strawberries do not appear to have suffered. Apples, of course, are safe, only a few sorts being in bloom.—G. ARBEY, *Paxton Park Gardens, St. Neots*.

THE severe frosts of the past week have done most serious damage, and probably in many cases have caused a total loss of the fruit crop at Girtford and the district. The blossoms of all the earlier sorts of Strawberries, and even the small unopened buds of these, as well as those of Apples, Pears, Plums, Damsons, and Cherries, are apparently all injured past recovery. The only hope remaining is for such sorts as Court-Pendû-Plat Apple, the late Strawberries and the earliest Pears, such as Doyenné d'Été, which have well set their fruit and do not as yet show signs of falling, although the ovaries seem blackened, and it is probable these Pears may disappear later on. Gooseberries, except old unpruned bushes in sheltered spots, are falling. The Red Grape Currant has a chance of a partial crop, as the blooms are not so forward, and the young foliage of Strawberries is also much injured. Raspberries in bud, as well as the young offsets of these and the common Bramble, are also affected. The buds of Vines, Walnuts, and early Oaks show similar results. Roses, where not cut back, have the young shoots and buds withered. The blossoms and stems of the earliest Peas have not escaped. The young growth of Laurels is also blackened. Hardy Ferns, Borage, Anchusa, Myosotis, Clematis Jackmanni, Violets, Chrysanthemums, and many hardy plants are much injured. Anemone japonica has suffered very severely, and even the blossom of the common white Nettle and the young shoots of Clover are shrivelled. The lowest temperature registered in the locality was, I believe, 10° of frost on the night of the 19th and 11° on the 23rd inst. Previous to last week fruits of all kinds seemed in vigorous health, and the blossom strong and indicative of a full crop, but everything much in advance of the normal period. Altogether, I never recollect such disastrous results from April frosts in the East Midlands.—T. LAXTON, *Bedford*.

A CORRESPONDENT informs us that "Fruit-growers about Southfleet and Higham in Kent state that serious mischief has been done to Cherries and Plums by the cold of this and last week. Some of the Pears have also suffered. In reference to this subject, a Covent garden salesman writes to a daily contemporary:—"The gravest fears are entertained with regard to the safety of the fruit crop for the ensuing season. We learn from some of our most important growers in Kent and Middlesex that the recent severe frost has totally destroyed the crop of stone fruit. The Pears are certainly decimated if not totally destroyed. Even the Apples have been frozen through, and therefore cannot possibly come to maturity. Black Currants are very greatly injured; but the Gooseberry, owing to its abundant foliage, has partially escaped the general destruction."

As an example of the injury to fruit in the neighbourhood of the metropolis, it may be remarked that in Streatham the fruit generally appears to have suffered most severely. In the gardens at Leigham Court House Plums have been almost entirely destroyed, Pears have suffered greatly; Cherries, Currants, Gooseberries, and even Apples, of which the flowers were not fully open, have been similarly affected. Although the promise was very good, there will not be half a crop of any kind of fruit. The lowest temperature has been about 10° of frost.

SPECIAL SOCIETIES.

THE remarks made by Mr. Dodwell at the Auricula Show, coupled with the fact that I have received the private letter to which he alludes, makes it clear that he assumes, without one tittle of evidence, that I wrote the paragraph "Fair Play," which has so excited his wrath. He states, moreover, that I shrank from coming to the meeting, although I received an intimation from him. Permit me to say that the letter was not received by me until after I returned from London on the 22nd, and that therefore I knew nothing about what was to take place. All this compels me to do what is very distasteful to me, but which I am obliged to do in order that it may be seen that whenever I do dissent from Mr. Dodwell I am not actuated by any personal feeling.

Some time before Mr. Dodwell removed to Oxford I gathered from

him that he was in much trouble and anxiety owing to pecuniary losses and a threatened action for libel. Some days after, in thinking over our conversation, it suggested itself to me that it would be a graceful and acceptable thing to present him with a testimonial on the ground of the benefits he had conferred on floriculture; but feeling that I was not a sufficiently old friend to put myself at the head of it, I wrote to Mr. Charles Turner, who cordially approved of it and warmly took it up. Now, is it likely that, having done this, I should be influenced in any remarks I may make by anything but a desire for what I consider the interests of floriculture? As I say, it is excessively distasteful to me to mention such things; but my numerous friends will appreciate, I am sure, my motives in so doing.—D., *Deal*.

ANTENNARIA TOMENTOSA.

I FIND this one of the most effective and useful edging plants, and it is the more valuable because it is quite hardy. Its colour, too, a silvery white, is very suitable for placing next either turf or Box edging, and behind it may be placed with pleasing effect almost any of the shades of colours in ordinary or carpet bedding.

Flower beds are generally made up 2 or 3 inches above the level of the turf. When ready for planting a hoe or a spade is generally run round the bed, setting the soil up with a sharp sloping edge. This is necessary for the purpose of keeping the edge of the turf clear for the edging shears, and also for the sake of neatness. In the case of carpet beds this sloping side is covered with some such suitable plant as the above named, but in ordinary bedding the edging is more generally planted on the top of it, consequently it is bare black earth for weeks till the plants grow and hang over it. Three or four years ago a neighbour sent me a few pieces of this Antennaria that he had left after bedding-out—one of those considerate actions so often met with in all true lovers of gardening. I have continued increasing my stock of it till we have now, at the special request of my employer, edged nearly all our flower beds on grass with it. And when we consider that it is permanent, and that all the keeping in order it requires is picking off the flower stems in May, the saving of edging plants and labour in keeping would be considerable where much bedding is done. The plant is very easily and quickly propagated by pulling it to pieces and replanting, as it runs on the surface and roots along the stems, and a stock of it is soon got up. We confine this edging simply to the raised edges of the beds, and when once done it will stand for a number of years and requires no attention, whether you plant the bed with ordinary bedders, carpet plants, half-hardy annuals, or mixed border fashion, and it is particularly suitable for spring beds. I commend this to all who would have their beds look neat with the least amount of labour.—R. INGLIS.

ORCHIDS AT WESTBROOK, SHEFFIELD.

IN the *Journal of Horticulture* of April 3rd, 1884, there is a paper on the above subject, which subsequently appeared in the *Sheffield Weekly Telegraph*, which I cannot allow to pass unnoticed, as I feel it disparaging to myself.

Your correspondent, "W. K. W.," says, "The late proprietor, H. Wilson, Esq., was a great lover of Orchids, and spent large sums in their purchase and cultivation, and under the skilful management of his gardener, Mr. D. Clements, his became one of the best private collections in the provinces. In 1881, however, during the illness of Mr. Wilson, which eventually terminated fatally, a large portion of the collection was disposed of at Stevens' rooms." In endeavouring to answer that, I would ask how could Mr. Wilson be ill in 1881, when he died in November, 1880, and the Orchids were sold in June or July of the same year.

Again, he says, "For a year or two from then little was heard of Orchids at Westbrook, but at the present time a great revival appears to have set in. Mrs. H. Wilson and her son, Mr. Alfred Wilson, appear to unite in supporting their able gardener, Mr. Pidsley, who is an enthusiastic and skilful cultivator, and appears likely to soon restore the collection to much of its former excellence." To what years does "W. K. W." refer when little was heard of them? I had charge of them over three years, and when I left them I defy "W. K. W." to prove that they were not as healthy and strong as any in the provinces or metropolis. He also speaks of the strength of the spikes of Odontoglossums. If he would look back in the "Garden" of May 27th, 1882, page 366, he will find notice of an Odontoglossum in flower at that time which had three spikes from one pseudo-bulb, one spike having twenty-nine another thirty-two flowers, the third I pinched off. To further show that the Orchids were good I will quote what a gentleman once said who had visited Westbrook for seventeen years. His remark was that "he had never seen anything like them before, and he would tell Mrs. Wilson so;" and in nearly the same words one of the family not residing in Westbrook told me, also referring to the plants. I will now ask Mr. Woodcock whether "nothing was heard of the Orchids" after he left the neighbourhood? Again, he says the Odontoglossums fill two span-roofed houses, each about 40 feet by 12 feet. I must once more correct him by saying that this is not so, and that one house is considerably less than the other. I should not attempt to make these corrections were it not that several gardeners of Sheffield called to see me about the subject.

In conclusion, let me state that it was neither Mr. Wilson's nor Mrs. Wilson's wish that I should leave. I will therefore allow your readers to judge between us. As for Calanthes, I had them with spikes 6 feet 6 inches long, and 3 feet 2 inches in length of bloom open at one time on one spike. I have enclosed copies of two testimonials from Mrs.

Wilson, and wish your opinion of them. Trusting to your kindness to publish the above in your next issue.—F. F.

[The testimonials are perfectly satisfactory, and we trust you will soon obtain a suitable appointment. We doubt not that had "W. K. W." had the opportunity of seeing the examples above referred to, that he would have as readily recognised the ability of the cultivator as in the case of Mr. Clements and Mr. Pidsley. We saw the Orchids when in charge of the first-named gardener, and they were very superior. The mistake as to date was obviously a mere clerical error, and the precise size of the houses is a matter of small moment. When a person visits a garden he does not as a rule take the exact measurement of the structures. It does not follow, that because two gardeners are competent, that a third is not equally skilled; but it does follow that when a large number of Orchids are sold, the smaller collection remaining, however well the plants may be cultivated, is naturally less famed, and we shall be much surprised to learn that "W. K. W." intended to convey anything more than that in his communication.]

VINES BLEEDING.

THIS season some of my Vines, young ones planted last season, have bled very much, and as I have derived a practical lesson from it I give it to others. I started my Vines with a bed of hot manure, and no fire heat. Three weeks before doing so I thoroughly drenched the borders inside on several occasions. Severe bleeding commenced a few days after, and continued until the shoots were some length. I could and would have stopped the bleeding, but accepting the theory of several writers that the so-called sap was only water without substance, let them continue until they ceased.

The Vines are just now recovering, but there is no fruit—the embryo has perished. I gathered fourteen bunches of Grapes from the same class of canes last year. Too much water is the chief cause of bleeding, and being given before growth has sufficiently advanced. Young Vines should have none, or very little, until rapid growth has begun; then for a time they cannot have too much.

Old Vines, especially those planted inside, seldom receive half sufficient water, neither summer nor winter, and this is the chief reason why Vines do not do well on the back walls of vineries. Last year I had a Black Hamburgh on a back wall with bunches overlapping each other from the roof to the floor, well hammered and finished, the foliage leathery, which were supplied with urine and soot. Bleeding is a great injury, and water is the cause.—J. E. WAITING, *Grange-over-Sands*.

PINGUICULA CAUDATA.

THIS plant should find a place in every cool Orchid house, as it is most useful and interesting. Since we have arranged several among our Masdevallias and Odontoglossums fumigating and insecticides have been dispensed with—two remedies which should be discountenanced in this house. I lately saw some valuable plants that had been completely disfigured by injudicious washing with nicotine soap, and I do not think fumigating can be done sufficiently to kill and keep down aphides without injury to the foliage and flowers of the Orchids. I presume it is the male, which flies about; this comes in contact with the leaves and flower stems of Pinguicula, which act as traps, and by catching these the others soon become extinct. *Mimulus cardinalis* is another plant that has stood in the same house some time, and has proved serviceable in catching hundreds of this troublesome insect. At one time our plants were badly attacked, but since using the traps as advised we have scarcely any insects without resorting to other means of eradicating it.—G. W. CUMMINS.

NARCISSUS JAMES DICKSON.

ON page 299 of your issue of April 17th you gave an admirable illustration of the very beautiful variety of *Narcissus incomparabilis* which has received the name of James Dickson. After giving some particulars of its reputed origin you ask for further information upon the matter, and as a few facts have come to my knowledge I send them in the hope that others may be able to add to them.

As stated in your notice the plant was named by Mr. Burbridge from flowers supplied by Messrs. James Dickson of Chester, and the same firm was awarded a certificate for it when flowers were shown at Kensington. It now appears that at the last meeting of the Committee (April 22nd) a letter was read from Messrs. Dickson to the effect that the person from whom they had received the flowers desired the name to be altered. This, however, could not be done, and the question arises as to whether the firm named above was authorised to show the flowers and receive a certificate for the variety when this is wholly in the hands of another person, as I am reliably informed it is. It is said that for some time past flowers have been sent from a certain garden in the north to the London and Manchester markets, but that the bulbs are confined to the possession of this grower, who has at present declined to part with the stock. No doubt Messrs. Dickson can explain the matter satisfactorily.—NARCISSOPHILE.

CHLORIDE OF POTASH.

YOUR correspondent who recommends the use of chloride of potash is, as "Medicus" points out, advocating the use of what does not exist. In the reply (given on page 322) to the objections raised by "Medicus," your

correspondent strives more to be funny than correct. I am anxious to profit by the information originally given, and would gladly try the manure recommended. This is, however, quite impossible if the ingredients are not correctly named. Will your correspondent, therefore, be kind enough to state what he means by chloride of potash? Is it potassium chloride, or is it potassic chlorate?—M. D.

[Potassium chloride doubtless. Scientifically, of course, chloride of potash is an impossibility; nevertheless, the agricultural potash salt is sold by that term, also as muriate of potash, which latter name is also incorrect from a strictly scientific point of view. Yet, in a late agricultural report, it was constantly referred to under the latter name.]

PRUNING ROSES.

LATE pruning and early pruning both have their advocates, and the question could scarcely be more ably debated than at various times it has been in these columns. After all, experience alone can decide it, and that not in one or two localities nor of one or two seasons.

In the present season there have been great differences of opinion and procedure. Early in the year I was present at a Committee meeting of the National Rose Society, and took the opportunity to question several authorities.

Some said, Prune early! others said, Not so.
Some said, It might do good; others said No.

One gentleman, whose opinion I value highly, meant to defer until April. I always hold here in mid-Surrey with the last week in February, but I suspect this season my Reigate friend is nearer right. Such an April as this has been does not often occur, 21° in a Stevenson-Mawley screen, and 18° on the grass, which was my case on April 23rd, cannot take place without leaving its mark.

I always think Rose trees at the end of April look about their worst, but their worst is quite exceeded this year. The too sanguine shoots are blackened and shrivelled in every open part of the garden, and, what is a still greater loss, all my forward budded Briars are heavily damaged. I have tried second pruning with some of the strongest cut-backs, rather a desperate remedy, but with a view to see how these will compare with the others. It would, I think, be both interesting and valuable if we could learn in "our Journal" from both late and early pruners how things are turning out. I am, and always have been, a strong advocate for early pruning, holding that six years out of seven it makes scarcely any difference between the end of February and the beginning of April when H.P.'s are pruned, but this year I much incline to think late pruners will come off best. But may I ask for a little more discussion of the subject?

Some better precepts if you can impart,
Why do. I'll follow them with all my heart.

—A. C.

THE AURICULAS AT SOUTH KENSINGTON.

IT has been my wont as an old Auricula grower to take notes of the shows which have now been held for some years in London and, indeed, for which I am in a certain sense responsible; for it was an expression of mine that florists' flowers were "hopelessly at a discount in the south" which led to the formation of the southern section of the National Auricula Society, and certainly thereby a great stimulus has been given to the growth of the flower, if it has not largely increased the number of exhibitors in the south, and has afforded from year to year an opportunity of lovers of the flower meeting together to talk over their favourites. Had it not been for it there are many lovers of it who would never have seen those "northern lights" Mr. Horner, Messrs. Ben Simonite, E. Pohlman, and one whom we shall see no more, alas! the recently deceased George Rudd; there would have been no opportunity of correcting the somewhat lax southern type of flower by the more rigidly exact northern taste, nor probably would the want of encouragement of the flower have led to the many new varieties being added to our lists; for however it may seem to pertain to mercenary ideas, I think that without question the offering of prizes does lead to the encouragement of the particular flower so taken up, and that, however it may be with growers for sale, amateurs will not continue to exhibit where all is expenditure and no chance of any return given.

In reporting on these shows I have, I fear, at times trod on some people's corns; but as I have never done so for the purpose of giving pain, but simply in what I believe to be the true interest of the flower which has been my earliest, and will be, I think, my latest love, I make no apology for so doing. It must be that a writer who speaks his mind will offend some people, but this we cannot help; he would be worse than useless if he were to either say what he did not think or suppress his convictions for fear of offending others. I remember what Lord Palmerston once said, that public men ought to have rhinoceros hides; and although many hard things have been said of me, I am thankful to say they have never disturbed me, but have passed by as "the idle wind which I respect not."

And now as to the particular Show in question. I do not enter into the question as to whether it was the best or not which the Society has ever held, but merely say in passing that I do not think it was. The flowers were not so numerous, and it was unquestionably a day for the southern men. We have had during the last three weeks such a spell of that "vile north-easter" that, as one of the northern men expressed to me, their plants were literally starved. They had arrived at a certain

stage, and there they remained, and I think they have learned that the application of fire heat is a dangerous tool to play with. I think that no stronger proof of the truth of this statement can be given than the fact that Ben Simonite could not even enter in the class in which he has always been a victor—the class for twelve varieties, and could exhibit in no higher class than fours. The northern flowers had in many cases a cramped appearance owing to the same cause, and even Mr. Horner's flowers, excellent as they were, were not equal to what I have seen them, and, indeed, that was his own judgment on them. We missed, too, the beautifully grown and well-flowered plants of Mr. Penson of Ludlow; and, taking altogether, I think the palm for the best plants in the Exhibition must be given to Mr. Douglas. I have sometimes found fault with his plants in former years, that they lacked refinement, and were many of them unrecognisable from their coarseness. I went this year through his class of fifty, where this fault used to be more patent, and I will not say I was surprised (for nothing that Mr. Douglas does in the way of good gardening need surprise anyone), but I was as a lover of the flower intensely pleased with the beauty of the collection. There was hardly a flower, as far as I could see, that was out of character, and while the foliage was ample, and indeed luxuriant, it had none of that cabbagey appearance which, I think, spoils the refined appearance of the Auricula. Exception may be taken to such coarse flowers as Vulcan, which is always a rough coarse flower, but exceptions prove the rule.

The very ample report given in last week's Journal obviates the necessity of my entering into the details of the Show, save to remark that the best-filled classes were those which I had some difficulty a few years ago in getting established—those for fours and twos—to be competed for by those who did not exhibit in twelves and sixes; and although one was surprised to see some names in them that one never thought of finding there, yet I believe that nothing has more tended to increase the growth of the flower than the establishment of these classes. I would rather notice some of the flowers without any special reference to the exhibitors. Taking the green edges first, there is no question in my mind than that Prince of Greens, which I at one time thought was not equal to what it was supposed to be, has of late years improved under culture. It has lost to a great extent that sprawling spidery cast of truss it used once to show, and nothing more beautiful than the plant which obtained the premier prize, exhibited by Mr. Pohlman, can be imagined. The green was so beautifully pure and the truss so excellent in arrangement. We wonder at times how it was that Colonel Taylor held so long, and indeed does still hold, so high a place amongst green edges. True, the edge is unimpeachable; but then it is very angular, and the body colour is apt to run into the paste or, rather, show underneath it, so that it has not that clean solid look which the paste ought to have. But I suppose, as I have said, that the vividness of the green edge condones its other faults, and indeed it will be seen that in the class-showing there was no other catalogued flower that took any of the eight prizes; but to my mind, when you can get, as sometimes you can, a bloom of George Lightbody or Lancashire Hero as green edges there is no flower which can approach them. I have a small truss of George Lightbody in flower with a perfectly green edge, and most beautiful it is. Will it continue so, or revert to its normal condition of grey edge? I do not say anything of the seedlings because we are not likely to see anything of them for some time to come in a general way, but there can be no doubt of the excellence of some of those exhibited.

The class of grey edges was still more numerous than the greens, for it is the most fruitful class of all; but here again we find George Lightbody carrying off the principal honours (I exclude, as I have said, seedlings), and it is somewhat singular that that grand flower Lancashire Hero does not appear as a prizewinner. Some years it has taken a very prominent place, but this year it is out of the running. Alexander Meiklejohn is another flower which at times runs George Lightbody close, and there is a deal of promise of Mr. Horner's Irreproachable, which we might rather call Unapproachable; but at present George Lightbody still keeps its place and the name of old Mr. Headly green in Auricula growers' memory. Dr. Horner is another flower which at times runs George hard, but only rarely, and the old favourite is still, I believe, the ideal of an Auricula grower's grey edge, and it will be a fortunate day for any raiser of seedlings when he can say, "I have a grey edge which beats George Lightbody."

The most limited class of all is the white edges. I mean limited as to the number of good varieties, for a large proportion of them are greyish-white, and not white. I would class as the pure white edges Acme (Read), Glory (Taylor), and Catherina (Summerscales), the two latter very old flowers; while of those flowers where the colour is more or less a greyish-white Smiling Beauty (Heap), True Briton (Hepworth), Beauty (Trail) amongst the older flowers, and I think, from what I have seen of it, Mr. Douglas's Conservative are to be classed. In the single classes it will be seen that Acme held the most prominent place, taking four out of the seven prizes, and seems to have been exceptionally good this year. The other three prizes were taken by seedlings, Conservative, Luna, and Beeswing. Taylor's Glory is a very early bloomer, and rarely puts in an appearance at these exhibitions, while Catherina is more of a favourite in the north than in the south. It is an angular flower, but its edge is unexceptionable. Trail's Beauty is sometimes very good, but when not in character it is the very reverse of a beauty, and it is inclined somewhat to be coarse. Frank Simonite was also shown well, and when John Simonite becomes more plentiful it will be a useful flower.

We now come to selfs. Some of the best were unrepresented in the single

specimen class; there was not amongst them one Pizarro, or Metropolitan or Mrs. Sturrock, or Lord of Lorne, or Lord Clyde, nor Mrs. Douglas, all good and prize-winning sorts, Mr. Horner's Heroine, a grand flower of most refined character, taking the foremost place, and Kaye's Topsy, which seems to have come out exceptionally well this year, and Blackbird, another fine sort, coming in also. Any raiser of seedlings knows that this is the class which most frequently appears in a seedling par, and all raisers of seedlings generally commence with a good self. The plants, too, of this class are generally very vigorous, with one or two exceptions, such as Duke of Argyle and Lord Clyde, and they are by the uninitiated generally the most appreciated.

I think that there could be but one feeling, and that of satisfaction, that the Veitch Memorial medal and prize went to Mr. Horner. Of course we had all set it down in our minds that it would be so, but still there was a chance that even the champion grower might come off second, although not a likely one, and we all felt that it had gone where it ought to go, to the best grower of Auriculas we have ever had.

There is one other subject of a painful character that will mark this Exhibition—the death of Mr. George Rudd of Bradford. I had not heard of his illness, and looked out for him in vain. He has not long survived his devoted friend Mr. Woodhead, and I believe will be universally regretted. I never was at his residence, but I have frequently met him, and always felt that he and Mr. Woodhead were kindred spirits. He was a keen and experienced florist and an honest and upright man to deal with; and thus the death roll becomes larger, and even amongst the limited circle of florists gaps are being continually made, but I shall ever associate in my mind with the Auricula Exhibition of 1884 the name of George Rudd.—D., Deal.

RHODODENDRON AUCKLANDII.

THIS, one of the most beautiful of the race of Sikkim Rhododendrons, is at the present time in full beauty with us, and taking into consideration the hardiness and easy culture of these plants it is somewhat surprising that they are not more frequently met with. We have here two specimens of *R. Aucklandii* bearing numerous trusses of exquisitely chaste flowers, of four to seven in a truss, and anything more beautiful is not easily conceived. According to the opinion of numerous admirers they are in point both of beauty and fragrance equal to many of the high-priced Orchids. While the care and anxiety that the latter occasionally give the grower are difficulties not easily overcome, the former which has, I am informed, being considered and even proved quite hardy by some growers, requires at the least but ordinary care and attention. The specimens above named are about 10 feet high, and one (the largest), was purchased from Messrs. Henderson & Son, St. John's Wood, as long ago as 1858. The plants when not in bloom are always noticeable on account of their bright glossy foliage.—W. W., Croydon.

[This magnificent Rhododendron is considered to be a variety of *R. Griffithianum*, and as such was figured in the "Botanical Magazine" in 1858. In Dr. Hooker's "Sikkim Rhododendrons" it was described as a species under the name of *R. Aucklandii*, but subsequently when reviewing these plants in the Horticultural Society's Journal for 1852, Dr. Hooker stated that it was the same as Wight's *R. Griffithianum*; the latter author's figure and description having been taken from an inferior specimen, and he decided to waive the name of *Aucklandii*. Still further examination of plants that flowered in Mr. Gaines', Wandsworth Nursery, in 1858, convinced him that it was really a variety of *R. Griffithianum*. The plant is found in Bhotan and Sikkim, at from 7000 to 9000 feet above sea level, in valleys where the climate is rather drier than in many other parts of this district, and was introduced to England in 1849. Our figure represents a reduced truss grown on one of Mr. Major's plants at Cromwell House, Croydon.]

DOUBLE GERMAN WALLFLOWERS—SPRING BEDDING.

VISITING the admirably managed gardens at Minella, near this town, a few days since, my attention was attracted by four large beds of Wallflowers with splendid spikes of bloom. So showy and effective were they, that I was induced to ask Mr. Crehan, the head gardener—Are those beds ever more brilliant in summer and autumn? These dwarf double, or perhaps more correctly semi-double, German Wallflowers were in bloom for the past month, and broke the customary garden monotony the whole winter. Now I am acquainted with many gardens, and I respectfully submit, is it not the practice in too many to leave the flower beds wholly unoccupied during the winter months—in fact, until the end of May or beginning of June, when the ephemeral summer bedding comes forth? Why should this be so? There is not the least reason why a magnificent bouquet should not be possible during the months of February, March, and April; and in our mild climate (we had no winter this year) we have Snowdrops, Christmas Roses, early Narcissi (*N. minor* and *N. obvallaris*) Aconites, Erythroniums, Violets on warm banks, and if not too severe, a sprinkling of Crown Anemones, &c., as early as January. The materials increase every day; and this morning,

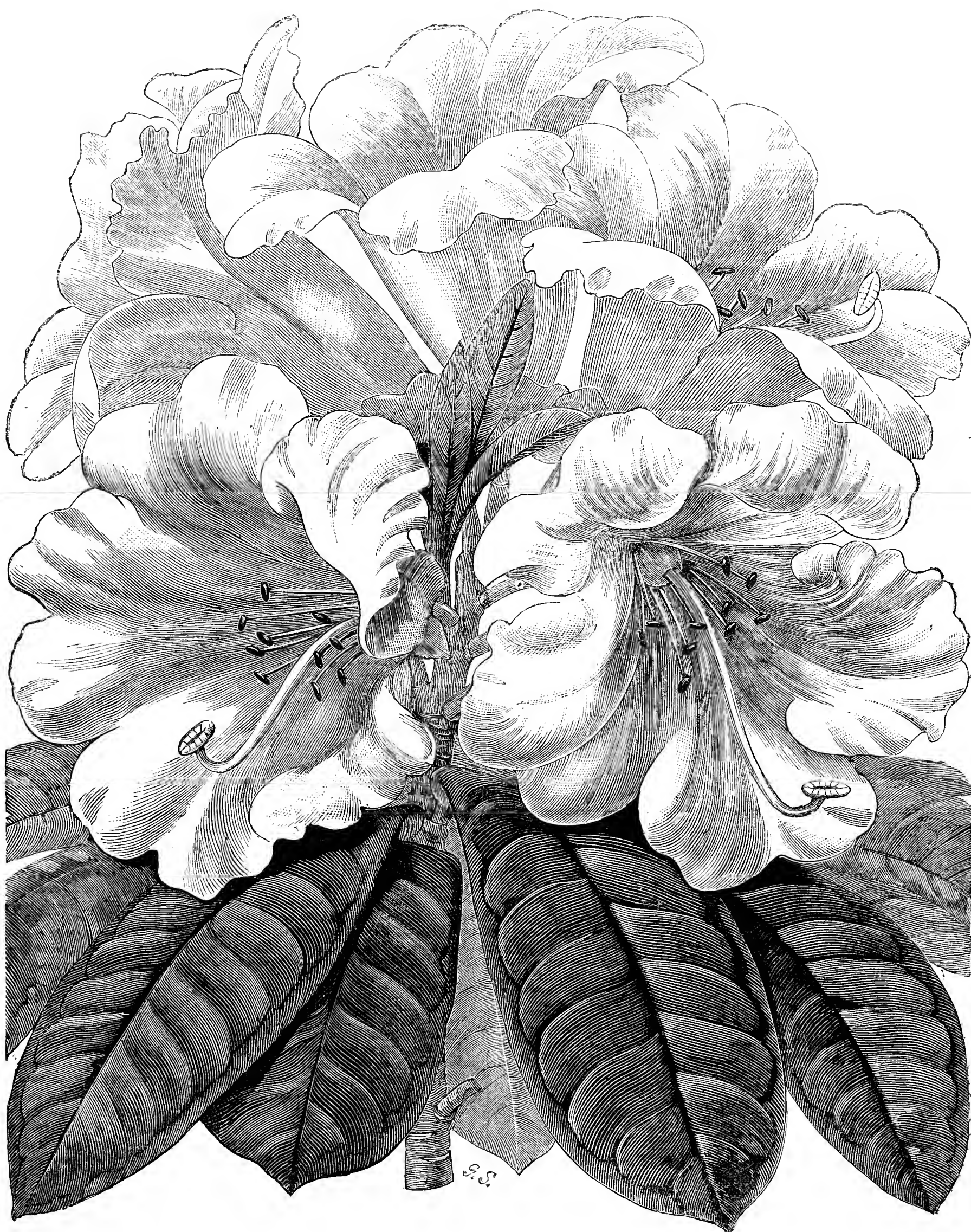


FIG. 84.—RHODODENDRON AUCKLANDII.

what I have never noticed before in April, a bed of semi-double Cockade Ranunculi—called by the old florists "Meladorres"—commenced to unfold their blossoms. No true lover of his or her garden (even though it is used for summer bedding) should have it vacant during the months named. There is not the least reason to stop me, as has been done more than once, by interjecting, "Bulbs are very expensive for a large garden." Why I know several gardens, with more than a score beds, brilliant now, and without a bulb at all. London firms will supply a dozen distinct varieties of the above. Another dozen beds, all different, could be filled with Anemones, and next year, to be fashionable, no garden should be without a dozen varieties of Primroses, especially *P. acaulis* for souvenirs, another dozen of the best of the Narcissi, and so on. There is no difficulty in finding materials in the way of showy hardy flowers, as the lists in your columns frequently testify.—W. J. MURPHY, *Clonmel*.

NEWCASTLE SPRING SHOW.

APRIL 23RD AND 24TH.

THE Durham, Northumberland, and Newcastle Horticultural and Botanical Society held their seventh spring Exhibition in the Corn Exchange and Town Hall, Newcastle-on-Tyne. The Show was much above the average of spring exhibitions, and was considered by judges from the metropolis to be superior to any exhibition held in London this year. The Society has held their Exhibition about three weeks later than usual. This, of course, affected the Hyacinths, which were below the usual average shown at this Exhibition, but this deficiency was amply made up by the quality of the stove and greenhouse plants, which far surpassed those of any previous season.

The Judges found it necessary to award two first prizes for the four stove and greenhouse plants to Messrs. Methven and Noble, the one showing a superior collection of Orchids, and the other of greenhouse plants. The Orchids were such fine examples of high-class culture, that it is to be hoped the Society will see their way to offering a special prize for these plants another season. This will prevent the Judges being placed in such an awkward predicament in having to decide between first-class Orchids and superior examples of greenhouse plants. Appended are the awards of the Judges in Classes A and B.

In Class B, for four stove and greenhouse plants, the Society offered £11. This brought four competitors with excellent stands. Mr. A. Methven, gardener to E. Lange, Esq., Heathfield House, Low Fell, was awarded equal first prize with Mr. Noble, gardener to Theodore Fry, Esq., Woodside, Darlington, the former for an *Oncidium sphacelatum* with ten spikes, *Dendrobium Devonianum* with thirty spikes, *Dendrobium nobile* 4 feet 6 inches through, and a good plant of *Erica affinis*. Mr. Noble had an excellent *Clerodendron Balfourianum*, *Genetyllis fuchsoides*, *Tetratheca hirsuta*, and *Erica Victoria* 4 feet through, the latter a splendid specimen. With the *Tetratheca* and *Genetyllis* they formed a trio of greenhouse plants that could not be easily excelled for abundance of bloom, good training, and high culture. Mr. T. C. Ford, gardener to Mrs. H. Pease, Pierremont, Darlington, was third. His best plants were *Clerodendron Balfourianum*, *Genetyllis tulipifera*, and *Imantophyllum miniatum superbum* with eleven spikes. Mr. Neil Black, gardener to Misses Pease, South End, Darlington, was fourth; he had a good *Vanda suavis* with ten spikes.

For four Azaleas, dissimilar, Mr. T. C. Ford was first with *Duc de Nassau*, *Model*, Mr. Wm. Bull, and *Marquis of Lorne*, examples which were profusely flowered, well trained, both foliage and flowers being seen to advantage. Mr. A. Methven was second with *Stella*, *Punctata*, *Mont Blanc*, and *Triumphans*; these were trained pyramidal shape. Mr. Neil Black was third. The *Dielytra spectabilis* in this class was well shown, Mr. W. R. Armstrong, nurseryman, Elswick Road, Newcastle-on-Tyne, being first, and Mr. Larke, gardener to the Rev. W. Wheeler, Whitby, took the premier honours in the corresponding amateurs' class. *Deutzias* were also shown well, Mr. Ford and Mr. A. Methven taking first and second honours respectively. *Cytisus* also formed a special feature, Mr. J. Wood taking first prize in each class.

Amongst these spring-flowering plants the most striking were the *Spiræa japonica*, of which seven lots were staged. Some of them averaged 3 feet through in 8-inch pots. Mr. J. Noble was first, followed by Mr. J. Watson, nurseryman, Fenham Park, Newcastle. They were much admired, and so good were they that the Judges had much difficulty in making the awards. Mr. W. R. Armstrong was third. *Cinerarias* were also well shown, Mr. J. Noble being first, Mr. T. C. Ford second, and Mr. Charles Marr, gardener to J. Hedley, Esq., West Chirton House, third. For the corresponding class Mr. Noble and Mr. Marr took honours in the order mentioned.

Primulas for the time of year were creditable, Mr. McIntyre being first, and Mr. James Storrie in the corresponding class the same, followed by Mr. T. C. Ford. Mr. McIntyre was first also for *Cyclamens* in both classes, which were much admired, and considered by connoisseurs to be superior to any seen at any former exhibition, Mr. W. R. Armstrong and Mr. J. Storrie taking second position in each class. Hardy Primulas formed quite a feature, as it is seldom these lovely flowers are seen better in the north. Mr. J. McIntyre was again first with *Primula japonica alba*, *lilacina*, and *amœna*; Mr. W. L. Thompson, gardener to M. Bell, Esq., Wolsingham Park, being second with good plants of *Primulas marginata*, *abyssinica*, *ivalis*, and *intermedia*.

The table plants were not so numerous as in former years, but they were well grown and suitable for the purpose, being well carpeted with *Selaginella* and *Panicum variegatum*. Mr. J. McIntyre was first with *Dracæna gracilis*, *Cocos Weddelliana*, *Pandanus Veitchii*, &c.

Auriculas.—These were shown in good numbers, and some of them of superior quality. For twelve *Auriculas*, not less than nine varieties, Mr. E. Adams, Swalwell, was first, having fine examples of *Acme* with eight pips, which also received the premier prize for the best single plant; *True Briton* with five pips; *True Hero*, and *J. Waterton* not fully expanded. Mr. Thomas Hay, Killingworth, was second, showing *Charles Perry* with ten pips and *Trail's Beauty* very fine. Mr. Hay was first with six dissimilar varieties, *Charles Perry* being his best flower, as well as first for four dissimilar varieties. Mr. Adams was first with one green-edged variety. The green-edged varieties were on the whole good. Mr. Adams was also first for the grey-edged, as well as with the one white-edged variety, which were good. Mr. Atkinson

Winlaton, was placed first for a self with C. J. Perry, nine pips. For twelve *Alpinas*, not less than nine varieties, Mr. H. J. Watson was first, his best plant being *Brilliant*, which was very striking in colour.

For six *Polyanthuses*, gold-laced, Mr. Stobbs, Winlaton, was placed first, *George IV.* with twelve pips being his best plant, but *Exile* and *Cheshire Favourite* were also good. For other than gold-laced Mr. Atkinson showed some excellent unnamed white flowers. For a seedling Mr. Stobbs was awarded the prize for a plant much in the way of *Buck's George IV.*; in fact the Judge saw no apparent difference, but gave the exhibitor the benefit of the doubt.

Bulbs in Bloom.—These were below the usual average, no doubt attributable to the lateness of the season. For twenty-four Hyacinths there were three competitors, Messrs. H. Dewar & Co., nurserymen, Grey Street, Newcastle, being first, Mr. J. W. Watson second, and Stephen Nairn & Sons, Pilgrim Street, third. For twelve Hyacinths Mr. J. W. Watson secured the first position, and Mr. Dewar followed closely. In other classes Mr. J. McIntyre; Mr. J. Wood, gardener to H. N. Middleton, Esq., Fenham Hall, and Mr. Alfred Brown, gardener to Thomas Barnes, Esq., Whitburn Hall, were the prizetakers. For double Tulips Mr. McIntyre was first in each class. For single Tulips Mr. Watson was awarded the first place. For *Polyanthus Narcissus* Mr. J. W. Watson was first, and Mr. M. Larke in the corresponding class. Lilies of the Valley were exceptionally good, Mr. W. J. Watson being placed first with plants with seventy to eighty spikes of bloom each; the flowers were borne well above the leaves.

Cut Flowers and Decorations.—For twelve *Camellia* blooms Mr. W. L. Thompson was first with *Alba Plena*, *Duc de Sutherland*, *Sarah Frost*, and *J. Lind*. Mr. A. Methven for a bridal bouquet. Mr. Mark Hutchinson, Toward Road, Sunderland, was first with an arrangement of *Liliums*, *Amaryllys*, *Niphetos Rose*, and *Tuberoses*, all neatly edged with *Adiantum gracillimum*. Mr. Jupp was second. For a drawing-room epergne Mr. Webster, Sunderland, was awarded the first prize. The top tiers consisted of *Spiræas*, and double *Pelargoniums*, draped with *Tropæolum*; the second *Begonia Moonshine*, *Roses*, and *Azaleas*; the base was heavy but not formal with *Azaleas*, *Narcissus poeticus*, *Roses*, this being margined with *Davallia Mooreana*. Mrs. E. Adams, Swalwell, was second, and Mr. M. D. Thompson, gardener to Lindsay Wood, Esq., third. The last was a very tasteful epergne, and much dissatisfaction was expressed that it was not placed first. It has been usual for all the Judges to judge the epergnes and cut flowers, thus acting as a sort of committee. In the above case, unfortunately, one Judge was only present, but the vase was not quite erect, and no doubt this influenced the award. In other classes Mr. Thompson, Mrs. Adams, and Mr. J. McKenzie, florist, Benwell, were prizetakers. For hand bouquets Mr. Hutchinson and Mr. Webster won the honours in each class. For twelve *Rhododendron* trusses Mr. T. C. Ford was first with *R. ciliatum Veitchianum* (good), *Duc de Rohan*, *Magnificum*, &c.; Mr. Neil Black being second with *Gibsoni*, *Countess of Haddington*, and *Purity*. These were really a very grand show. For twelve bunches of *Azaleas* Mr. J. McIntyre was first with *La Reine des Blanchés*, *Duc de Nassau*, *Comtesse de Flandres*, *Dr. Morren*, *Imbricata*, &c.; Mr. C. W. Baynes, gardener to R. Dickinson, Esq., Shotley House, being second. For Pansies, Fancy and dissimilar, Mr. Atkinson was first in each class. For twelve *Roses* on stands Mr. Brusby, Pendower, was first with handsome blooms of *Maréchal Niel*, large in size and rich in colour; Mr. C. W. Baynes being second.

Miscellaneous.—Amongst the exhibits not for competition, one of the finest collections of hardy *Narcissus* ever seen in the north was staged by Mr. W. J. Watson, including flowers of many beautiful varieties. W. Fell & Co., nurserymen, Wentworth Nurseries, Hexham, showed as usual an excellent collection of hardy *Coniferae*, including such varieties as *Cupressus Lawsoniana* and *Dicksoniana*, *Thuja Vervaeana*, *Thujopsis Standishii*, *Retinospora filifera*, and the curious *Libocedrus decurrens aurea*.

The Committee and Secretary merit congratulation on the success of the Exhibition, which was in a great measure attained by ungrudging labour. The Committee and Judges dined at the Turf Hotel, where the Treasurer, Thos. Gray, Esq., presided, with Mr. Plinner in the vice chair.

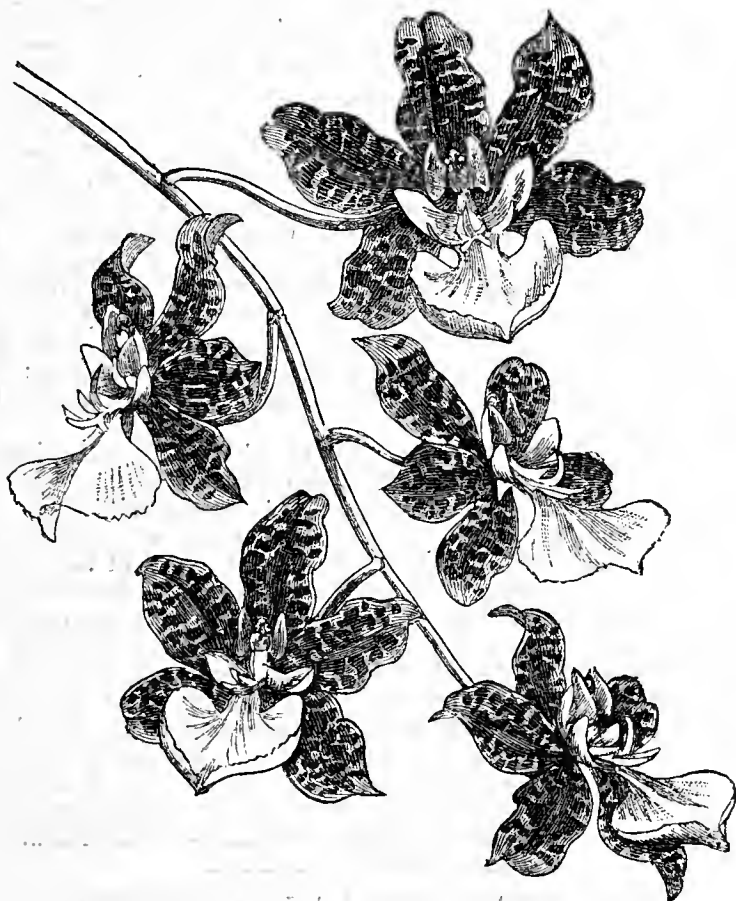
NOTES AT UPPER HOLLOWAY.

THE extensive collections of choice and beautiful plants in Mr. B. S. Williams's nursery at Upper Holloway have rarely been in better condition than at the present time, for every department possesses some attraction worthy of notice. Numerous as are the houses devoted to plants, the rapidly increasing stock requires more adequate accommodation, and to afford this several houses are in preparation, which will doubtless soon be filled when completed, and furnish additional attractions for horticulturists in search of novelties of sterling merit or older well-proved favourites. It is most pleasing to observe the activity prevailing throughout the establishment, as indicating that the general demand for good plants is very far from decreasing, and indeed there is substantial evidence that a great advance is being made in many classes of plants. To note a few of the most striking inmates of the houses we may commence with the

ORCHIDS.—These, it is known throughout the civilised world, are a standard attraction, and it is of little consequence what period of the year a visitor may select for his journey thither, there is always something rare, valuable, and beautiful to be seen in flower, and the utmost care is exercised to maintain this character. All the best varieties obtainable are added to the collection, and every novelty is secured and tested as soon as possible, the comparison with the many other varieties or species being most useful in proving whether the new comer deserves a position or not. Just now the *Cattleyas* and *Lælias* are in grand condition; about 500 or 600 sheaths are showing, which in the course of a few weeks will produce a display of unsurpassed beauty. Some are already flowering, and amongst them may be mentioned the profuse rosy purple *Cattleya Skinneri*, which is one of the really useful Orchids. Several pretty varieties of *C. Mendelli*, diversely, richly, and delicately tinted are noticeable; while of *C. Trianae* the collection is large and valuable, and scores of plants are promising a handsome display later on.

Odontoglossum vexillarium is of course represented by many fine varieties, but there is one which bears the appropriate title of *splendens*, which is probably the finest in cultivation, and merits special attention. It is the same variety as that of which a small plant was sold at Mr. Stevens' rooms a short time since for twenty-six guineas, and at the last Kensington meeting Mr. Williams was awarded a first-class certificate for the plant now noted. With such indications of its quality something good might be expected, and no one who saw it would be disappointed. The flowers are not of the largest size, but of excellent form; the petals round, even, and of great substance, while the colour is a uniform deep rose, which is relieved by a small blotch of white at the base of the lip. The variety is very floriferous, as a small but healthy plant in a 48-size pot has four spikes of six and five flowers each, and suspended from the roof of one of the houses it has a grand appearance.

Vandas are in their customary sturdy health, some plants of *V. suavis* and *V. tricolor* bearing a number of large spikes of their rich flowers. These form a beautiful bank, and near them is a plant of *Dendrobium superbiens* with a spike 2 feet long, bearing thirteen large flowers, and the condition of the plant indicates that whatever difficulties some find in its culture have been effectually overcome at Holloway. Though this is placed in the general collection, it may be remarked that a house is now devoted to the *Dendrobiums*, of which a great number are grown, *D. crassinode*, *D. Ainsworthi*, *D. Wardianum*, and similar well-known



. 85.—*Oncidium leucochilum*.

species being in strong force. A wonderful plant of *D. Calceolus* on a block, and showing forty or fifty spikes, will be very handsome in a short time, and worth a long journey to see.

Cypripediums constitute another feature, as many species are now flowering, and others will shortly take up the display. Of the distinct *C. lævigatum* a beautiful variety is flowering, deeply coloured and heavily striped. The rare *C. Druryi*, with its neat yellowish flowers, is worth a place in every collection, as it is unlike all others in cultivation. *C. caudatum* and *C. Haynaldianum*, of which the specimens are very large, are showing flowers abundantly, and numerous others are similarly good.

Odontoglossums and *Oncidiums* contribute considerably to the floral attractions, and among the former *O. Alexandræ* with its varieties alone constitute a beautiful show. The flowers of many forms of this plant are distinguished by their perfect symmetry, wax-like substance, and purity and delicacy of colour. It is not easy to decide which are the most pleasing—the white or the rose-tinted varieties. They are both beautiful, and in their finer developments extremely valuable. The darkly marked *O. Halli* furnishes a striking contrast to the *Alexandræ* type. The dwarf and charming *O. Rossi majus* and the almost constantly flowering *O. Erstedti* are notable and useful, while amongst the long-lasting *Odontoglossums* may be named *O. cariniferum*, which has several very large panicles, and has been in flower since Christmas. Though not so showy as some species this is well worth more attention, as it is a free grower, and the long duration of its flowering period renders it especially valuable wherever a display has to be maintained. The sepals and petals are brown, the tip white, and the column purple—a peculiar but not displeasing contrast of colours.

Thoroughly useful is the profuse *Oncidium concolor*, which is now brightening several of the houses with its abundant spikes of pure yellow flowers. Another free and pretty species is *O. leucochilum*, of which a side branch of one of the panicles is represented in fig. 85. Like most Orchids this species is naturally variable, and forms of widely divergent

merit have been introduced, but in clearness of the markings and richness of colour the one under notice is unsurpassed. The sepals and petals, which in some are of quite a greenish tinge indistinctly marked, are in this one boldly and regularly barred or spotted with brown on a yellow ground, the lip being of good size and pure white. The panicles are 3 or 4 feet long, but have been produced as much as 8 or 9 feet long, and they last for considerable time in flower.

In other houses *Masdevallias* are numerous and good, as well as many other Orchids which cannot be enumerated now, as other departments demand a word or two.

AMARYLLISES.—For something like a quarter of a century Mr. Williams has paid attention to the improvement of Amaryllises, and many highly meritorious varieties have been raised and honoured with certificates. Especial efforts have been made to heighten and diversify the colours, and with a large share of success, for some of the best coloured varieties have emanated from the Holloway nurseries. The stock now includes thousands of plants in all stages, from seedlings which have not yet flowered to specimens of considerable size and age. These occupy several houses, but the deficiency of accommodation has been long felt, and to better provide for them a span-roofed house has been commenced 80 feet long and 18 feet wide, which it is intended to devote to Amaryllises. There the collection will be seen to some advantage, and some brilliant displays may be expected which under the present arrangements would be impossible. The plants have been in flower for some weeks now, and several of the earlier varieties are past their best, but the finest of those still in flower are the following:—

Scarlet.—General Gordon, very rich, fine form; *Grandidens*, dark; *Cruentum*, handsome form, most effective; *Quartermaster*, dark; *William Pitt*, glowing, with white bars at the base; *Firefly*, very bright; *Unique*, an old and interesting variety; *Magniflora*, of great size; and *Dr. Masters*, one of the best formed types. *Crimson.*—*Beauty of Reigate*, dark and rich; and *Crimson King*, a handsome variety, with a white central bar. *Striped.*—*Loveliness*, white and rose; *Holfordi*, crimson and white; *Cleopatra*, crimson and white; *Guiding Star*, crimson and white; and *bicolor*, also crimson and white. Mrs. B. S. Williams is still the best of the white-flowered varieties, very pure and beautiful. A large number of careful crosses between the best varieties have been made this season, and will add, no doubt, to the number of useful varieties.

The houses of Ferns, *Nepenthes*, *Camellias*, *Ericas*, *Palms*, and miscellaneous stove plants, amongst which the *Dipladenias* are particularly numerous and healthy, are all attractive, as novelties abound in every department, and all alike are distinguished by a most satisfactory condition.

WHAT IS AN AMATEUR?

THE question as to what is an amateur, which seems now to be perplexing the minds of the members of the National Auricula and Carnation Societies, was some time ago brought before the National Rose Society's Committee, and their decision (comprising, as the Committee does, most of the leading nurserymen and amateurs) may be, I think, accepted as the best decision to be arrived at. It was felt that so many gentlemen and even noblemen disposed of the surplus stock of their gardens that it would be difficult to say that one who did so was not an amateur, although in some cases they sailed perilously near the wind; but that each case should be separately adjudicated upon by the Committee. But it was their unanimous opinion that when anyone published a catalogue and solicited orders he must be classed as a nurseryman; and, indeed, one case in which an amateur who took up Roses as his hobby but afterwards did so, did occur, but then with good taste he voluntarily withdrew from the amateur classes.—OLD EXHIBITOR.

ROYAL HORTICULTURAL SOCIETY.

SCIENTIFIC COMMITTEE, APRIL 22ND.

THE following abridged report we were unable to insert last week. There were present at the meeting A. Grote, Esq., in the chair, Messrs. Pascoe, Mangles, MacLachlan, Glaisher, Wilson, Smith, Boulger, Ridley, Loder, Houston, and Rev. G. Henslow.

Rhododendron Hybrids.—Mr. Mangles exhibited a large basketful of beautiful *Rhododendrons*, including the following remarkable hybrids:—Anderson Henry, a triple hybrid, raised by Mr. A. Henry from *R. formosum* crossed by *R. Dalhousiae*, crossed by Mr. Nuttall, and with very large white funnel-shaped flowers with yellow throat—the foliage is dark green; *R. Veitchii* crossed by *R. Edgworthii*, with large crimped petals and wide mouth—highly scented; it is called Otto Forster; a hybrid between *R. Thomsoni* and *R. Fortunei*, of crimson flower and dark foliage. Its stamens have "contabescent" or imperfect anthers, not unfrequently seen in hybrids. Another called the Countess of Haddington is the offspring of *R. Dalhousiae* crossed by *R. ciliatum* and Princess Alice, raised from *R. Edgworthii* crossed by *R. ciliatum*. He also showed the following species:—*R. virgatum*, a species with small pink axillary flowers interspersed amongst the leaves, not unlike a *Weigela*; *R. pendulum*, a rare species, described as an epiphyte upon Oaks, and remarkable for the closely tomentose under surface of the leaves. It refuses to hybridise.

The Weather of the Winter 1883-4.—Mr. Glaisher read an interesting paper on the remarkably high temperature of the last winter. See next page.

Arum proboscideum.—Mr. Wilson exhibited a blossom of this curious flower, a native of Italy.

Equisetum telmateia.—Mr. Houston exhibited specimens showing spikes with branched apices, covered with sporangia in every case.

Narcissus Bulbocodium (Monstrous).—Mr. Boulger showed a species of *Narcissus Bulbocodium* with several flowers confluent and the parts variously multiplied in consequence.

Calceolarias.—Mr. Henslow reported on the monstrous *Calceolarias* brought by Mr. Smee at last meeting. They both consisted of two flowers combined, but while in one case the two "slippers" were distinct, in the other the two adjacent sides of the two slippers were coiled up into a spiral, and thrust into the common interior of the two petals.

Ferns Grown in the Dark.—Mr. Henslow showed several petioles of fronds (the lamina not being developed) grown in total darkness in a temperature varying from 60° to 90°. They were of a pale green colour, while Peas germinated with them were void of chlorophyll.

Whip Made of Seaweed.—He also showed a whip made by twisted fronds of a Fucaceous Seaweed, probably a *Laminaria*, and a pipe made in the Hartz Mountains—the stem of a branch of *Pinus*, a head carved formed the bowl, with a head composed of *Usnea barbata*, and tassels of fruit of Alder.

Ornithogalum, sp.—Hon. and Rev. J. T. Boscawen sent a spray of handsome species, with large white scented flowers. It was referred to Mr. Baker for determination.

THE MILDNESS OF THE SEASON.

FOR the following remarkable particulars as to the temperature of the past quarter at Greenwich, as prepared by Mr. Glaisher, we are indebted to the Editor of the *Gardeners' Chronicle*.

The mean temperature of January was 43.9°, being 7.4° and 5.3° above the averages of 113 years and 43 years respectively. Back to 1771 there have been but only two instances of a mean temperature for January being as warm as 43.9°, and in 1796 45.3°, and 1834 44.4°.

The mean temperature of February was 41.9°, being 3.2° and 2.4° above the averages of 113 years and 43 years respectively. Back to 1771 there have been twenty-four previous instances of a mean temperature being as high as 41.9°—viz.,

1775 .. 41.9°	1849 .. 43.9°	1867 .. 44.7°
1779 .. 45.3°	1849 .. 43.4°	1868 .. 43.0°
1794 .. 44.7°	1849 .. 43.2°	1869 .. 45.9°
1809 .. 44.1°	1850 .. 44.7°	1871 .. 42.4°
1817 .. 42.6°	1856 .. 42.0°	1872 .. 44.8°
1822 .. 43.3°	1859 .. 43.1°	1877 .. 43.5°
1826 .. 42.2°	1861 .. 42.1°	1873 .. 42.2°
1833 .. 42.4°	1863 .. 42.1°	1883 .. 42.6°

The mean temperature of March was 44.5°, being 3.4° and 2.8° above the averages of 113 years and 43 years respectively. Back to 1771 there have been eleven previous instances—viz., in

1777 .. 44.6°	1822 .. 47.3°	1871 .. 44.9°
1779 .. 47.0°	1830 .. 45.8°	1872 .. 44.6°
1780 .. 42.2°	1841 .. 46.2°	1882 .. 46.0°
1815 .. 45.0°	1842 .. 44.9°	

The mean temperature for the quarter ending March was 43.4°, being 4.7° above the average of 113 years, there being only three instances of a mean temperature of a quarter as high as this—viz., 1882, 43.5°; 1846, 43.6°; and 1872, 43.6°.

The mean temperature of the six months from October, 1883, to March, 1884, was 44.2°, being 3° above the average of 113 years, there being six instances only of a temperature as warm or warmer—viz., 1819, 44.3°; 1882, 45.5°; 1834, 44.2°; 1846, 44.7°; 1849, 44.2°; and 1877, 44.6°.

AURICULA MRS. HORNER.

At page 328 a mistake occurs in the report of the National Auricula Society. Mrs. Horner, violet self Auricula, is stated to be raised by Mr. Turner; it is one of Mr. Horner's seedlings, and is, I think, a great improvement on any other in this colour. For many years Charles James Perry, raised by Mr. Turner, was the best flower in this class until a few years ago, when the variety Mrs. Douglas was raised and sent out by Mr. Simonite. This is a flower of greater substance than C. J. Perry, and holds a place in the winning collections. Mrs. Horner promises to be a better flower than either. The petals are what the fanciers term "rose-leaved," the pips flat and smooth, with a circular paste. Mr. Horner is the raiser of another very nice violet-blue, Sapphire by name; it is in several collections, and is very distinct; there is more blue in the composition of this flower than there is in any other. These new violet and violet-blue flowers quite do away with such varieties as Formosa (Smith), Metropolitan (Spalding), Meteor Flag (Lightbody), and others.—J. DOUGLAS.

[The error was a misprint not detected in time for correction last week.]

THE NAMES OF HARDY PLANTS.

IN answer to the note from "Specialist" on page 186 allow me to say that I fully understand that his motive in giving such a list was good, but I cannot agree with him, as my object would be to chronicle names which are purely synonymous, such as the plants have been described under by the various botanical authors. The following plant will well express my ideas on this point—viz., *Alyssum podolicum* (Besser), syn., *Schivereckia podolica* (Andrz.). It is left to our judgment which name to accept. If we desire to recognise very fine differences we are justified in acknowledging the plant as a *Schivereckia*. "Specialist" says he has kept a list of the different names under which he has received common plants, and no doubt he knows which is the correct name. When we receive a plant under a wrong name, and we are anxious that it should be distributed under its right one, the best course would be to convince the sender of his error. This proves a hard task sometimes, but it is one of the safe methods to lessen the much-felt inaccurate naming of plants, and I am sure that all reasonable persons would gladly welcome such an intimation. If we know a plant thoroughly the difficulty of convincing individuals of an inaccuracy is much reduced.

The pseudo names mentioned by "Specialist" I consider very misleading in many cases; for instance, *Eupatorium sessilifolium*. We may almost infer that if we write to a firm for this plant we may expect to get *E. ageratoides*; and further, I suppose if I already possess *E. ageratoides* I need not trouble about getting *E. sessilifolium*, for if I procured such it would only tend to extend my duplicate collection instead of adding another species to my list. These two plants I presume are not very generally in cultivation, but they are so distinct from each other specifically, that if we once become acquainted with them we ought never to forget their differences. *E. sessilifolium* has somewhat narrow lanceolate leaves, sessile, 4 to 5 or more inches in length, 1 to 1½ inch broad, and rather irregularly but sharply serrated. Flowers white, in large rather lax terminal corymbs. *Eupatorium ageratoides* has heart-shaped leaves coarsely serrated, about 4 inches in length and 3 inches in diameter, with a stem (petiole) 1 to 1½ inch long. Flowers white, in large terminal corymbs; the clusters of flower-heads forming the inflorescence are more compact than those of *sessilifolium*. The above two plants, which are almost as distinct from each other as regards their leaves, have been growing at Kew, and undoubtedly correctly named.

"Specialist" asks me to point out the differences between *Campanula lamiifolia* and *C. alliariaefolia*, dealing with the plants as they exist under cultivation. *C. lamiifolia* I do not grow now, but I have had it. It is considerably dwarfer than *C. alliariaefolia*, and with the stems much branched. The flowers, which are a yellowish colour, are invariably secund, and almost as pendent as those of *C. Van Houttei*, but only about an inch in length. The leaves are broadly heart-shaped—indeed, the width materially exceeds the length, and may be described as reniform-cordate, with doubly crenate margins, supported on petioles 1½ to 2 or more inches in length. The upper leaves gradually diminish in size and in the length of their petioles, but the prominent doubly crenate margins are always present. The leaves, I may add, are decidedly thicker than those of *alliariaefolia* and copiously tomentose beneath, as also are the branches throughout the whole plant. *C. alliariaefolia* grows almost twice the height of *C. lamiifolia*, the inflorescence is not so secund, neither are the flowers so pendent. The leaves are narrower in proportion to their length, their margins are not crenated but are finely serrated, the upper leaves are more decidedly sessile, longer in proportion to their width, and much more taper-pointed than those of *C. lamiifolia*; also the leaves throughout the whole plant are thinner in texture, and only very slightly tomentose.

With reference to the *Androsaces*, it may be well to note that I have grown both species—*A. lactiflora* or *coronopifolia* and *A. septentrionalis*. They are of annual or biennial duration. *A. septentrionalis*, if allowed to have its freedom, will, if in a suitable place, come up as spontaneously as a weed, and it appears to me feasible that the plants at Kew have cast their seeds behind the label of *A. lactiflora* and taken possession of the place. It is a plant likely to crush out the less flexible-constituted *A. lactiflora*. The leaves of both are very similar in outline, but *A. lactiflora* makes much the larger rosettes. The stem supporting the central umbel is quite erect, the surrounding ones bow outwards from the base, and then gradually curve inwards, displaying a bow-like peduncle. This character is anything but conspicuous in *A. septentrionalis*, which makes a rosette of leaves much smaller than *A. lactiflora*. Also *A. lactiflora* has larger umbels, and the individual flowers are much larger, and hence more conspicuous than those of *A. septentrionalis*.—PRACTICAL.

RHODODENDRONS AT DAYLESFORD.

IN your number for April 10th, page 283, mention is made of a remarkably fine specimen of *Rhododendron Nuttallii*, now growing at Daylesford, but nothing is said of the history of the plant. Is it known by whom it was introduced? Is it possible that it is one of the rare India plants brought there by Warren Hastings, who bought Daylesford in 1788, and took exceeding pains with the gardens? He certainly collected plants from the Himalayas, and sent an envoy on one occasion close to the Sikkim district, which I believe was not again visited by any Englishman for many years.

In 1774 Warren Hastings sent Mr. Boyle to Thibet on a mission to the Teshu Lama, hoping to open up trade with the country, and Boyle passed through the Himalayas, close to Sikkim. Among the private commissions given to Boyle by Warren Hastings he was told to send any curious or valuable seeds or plants, and any curiosities, whether natural productions, manufactures, or what else might be acceptable to persons of taste in England.—H. W.



HARDY FRUIT GARDEN.

Peaches and Nectarines.—Notwithstanding the cold weather the fruit of Peaches and Nectarines have set fairly well, and are slowly swelling. The outer foliage of most of the trees is sadly blistered by the cutting north-east winds, and no shoots will be removed until the weather becomes warmer. Under the most favourable circumstances we never begin disbudding until the fruit is set and swelling freely, and in so ungenial a

spring we shall be more deliberate than usual, both for the sake of the fruit, and also because the prominent foreright shoots screen the other shoots in some degree from cold and blister. As the weather softens remove protecting netting or screens, so that the foliage may have the full benefit of light and air, and may by such safe exposure become better able to withstand the effects of any subsequent recurrence of harsh cold weather.

Shelter.—Never was there a spring when the importance of shelter and situation was more fully exemplified than the present one, and now is the time to mark any deficiency in either of them, and to decide upon such remedial measures for next planting season as may be possible. It is the trees in damp low-lying and exposed situations that have suffered most lately, while those upon higher slopes or with thorough wind screens have passed through the trying ordeal with comparative impunity. A row or two of tall trees around a fruit garden may serve to break the force of the wind somewhat, but several rows are requisite to do it effectively, and even that is insufficient for a large fruit garden, which should have intersecting hedges about 60 feet apart. We cannot too often call attention to the value of *Thuia Lobbi* for this purpose.

Hellebore Powder.—A powder made from the root of the White Hellebore (*Veratrum album*) is now in general use for the destruction of the sawfly caterpillar, which eats the leaves of the Gooseberry and Red Currant. It is shaken over the foliage, and undoubtedly kills this troublesome pest, but it is a deadly poison and can hardly be used with safety among bushes where the green fruit is likely to be picked. We prefer to avoid the risk and practise hand-picking and smashing the caterpillars. A boy will look over all the bushes of most gardens in a few hours, and if taken in time they are easily kept under.

Strawberries.—The dry weather has been favourable for keeping down weeds, which come freely now between the rows of Strawberry beds. Do not put litter between the rows till the fruit is swelling, in order that the beds may be left as free from weeds as possible during the fruiting season, and that sewage may be applied as long as possible.

FRUIT-FORCING.

VINES.—*Early Houses.*—Early Grapes now ripening will require moderate fire heat to keep up a circulation of air, rather dry and warm by day, allowing it to fall to about 60° at night. Although a somewhat dry atmosphere is advisable when Grapes are ripening, excessive dryness must be guarded against, as this will seriously affect the foliage, and early Vines with ripe fruit will need considerably more water than late ones; and it is absolutely essential to keep the foliage of early Vines in good condition as long as possible, so as to prevent too early maturity, and consequently early rest and constant starting into growth a second time long before it is considered expedient. In order to prevent too early ripening of the foliage, not only keep the soil moist, but allow as far as practicable a moderate extension of lateral growth, and this in combination with the shade thereby secured will insure the fruit keeping on the Vines in much better condition, there being no fear of damage to early Grapes from moisture providing the house be freely ventilated. Gradually remove the spent fermenting material on outside borders, leaving a good mulching as a protection for the surface roots, and the summer rains will wash down the properties of the manure, stimulating surface-rooting, which in its turn will induce the production of lateral growth, and so prevent premature ripening of the foliage.

Midseason Houses.—The Vines in these have set their fruit and have been thinned. Those that are swelling should be well supplied with tepid liquid manure, and, to encourage surface roots and roots from the collar, should be well mulched with short partially decayed manure and kept moist, but the damping of the mulching material must not be given in lieu of periodical saturations of the border, which should be given as occasion requires, so as to pass the drainage. Allow a moderate extension of lateral growths, always being careful not to allow them to crowd the principal foliage, but where the roof is covered evenly with foliage, and there is not room for extension without crowding the principal foliage, keep it closely stopped. Avoid overcropping as the most fatal to good finish, and if there be any doubt about the crop being too heavy for the Vines to finish satisfactorily, give the Vines the benefit at once by removing the surplus bunches. The houses should be ventilated in good time in the morning, give a little early so as to allow of accumulated moisture being dissipated before the sun acts powerfully on the foliage. Begin to ventilate rather freely when the temperature is 75°, and keep it through the day at 80° to 85°, closing at the latter with a thorough damping of available surfaces at the same time, and after being closed a few hours a little air may be given for a short time, and the temperature allowed gradually to decline, so that 65° or 60° is recorded through the night, a low night temperature being very much better than a high one.

Muscats and others of a similar character that have just set their fruit will require careful thinning as soon as the properly fertilised berries take the lead. If more bunches have been left until after flowering than will not be required for the crop—a common and bad practice—no time ought to be lost in removing them, as there are no Grapes that show so greatly the effects of an overcrop as Muscats. They may swell right enough, but they never colour well. Muscats are also gross feeders even for Vines, and must have abundant supplies of tepid liquid manure with heavy mulchings, and the lateral growth should be allowed to extend as far as space admits. This must not be carried too far, as light is absolutely essential for the principal wood and foliage, also for the fruit of this particular Grape, as it seldom colours perfectly beneath densely crowded foliage. Early Muscats are sometimes scorched at this time of year when the sun is

powerful, which can, however, be prevented by maintaining a rather warm freely ventilated atmosphere, or a little constantly, particularly in the early part of the day. Where these Grapes are beginning to colour maintain a circulation of rather dry warm air through the house constantly, and a temperature through the day of from 80° to 90°, or 95°, and 70° to 75° at night if the ripening is to be accelerated, but they will ripen more evenly if allowed a little more time, affording rest at night by allowing the temperature to fall to 65°.

Late Houses.—The Vines have made rapid growth of late, although as a rule they have started weakly this season, and there is a tendency to form loose bunches or to run into tendrils. This is invariably a consequence of unripened wood, due to the practice of reserving fire heat in spring instead of having the Vines forward to admit of their receiving the full benefit of the summer sun, for to grow late Grapes well they require a long season of growth, and need more time to ripen than other Grapes. Vines that exhibit the tendency to run into tendrils should be kept somewhat drier, bringing the shoots down to the wires and stopping to within two or three eyes of the fruit, the best time to do this being in the afternoon of fine days when the growths are somewhat soft. Close early, making the most of sun heat.

Vines in Pots.—Give these every encouragement to make clean short-jointed growth by training them near to the glass, and ventilate freely on all favourable occasions, so as to insure thick leathery foliage, so that the eyes at their base may be properly developed, which they never do when their leaves are thin and flabby. Stop the laterals at the first joint, afterwards allow them to extend; they may depend or otherwise, only they must not in any case interfere with the access of light to the principal leaves and canes. Stop the main shoot or cane when about 8 feet long, and allow less lateral extension at the upper part than at the base. If there is convenience Vines from eyes or cut-backs intended for early work next season may be planted out in narrow prepared borders, and these will give much better returns than those grown exclusively in pots. They should be planted at about 2 feet 6 inches distance apart; a span-roof house about 12 feet wide will accommodate a row of plants on each side, the bed not needing to be either wide or deep. Where late spring planting is contemplated it should be attended to at once, as the stronger the canes the more certain are they to fruit, neither Grapes nor clean short-jointed wood being had from half-ripened wood, the encouraging of late growth in young canes being anything but furthering of a satisfactory growth another season.

Melons.—Where the fruit is ripening it is necessary to maintain a drier and more airy atmosphere in order to insure good-flavoured fruit; consequently a little air should be left on at night, as a confined atmosphere is a cause of cracking, and deteriorates the quality of the fruit. Secure to succession houses a night temperature of 65° to 70°, admitting a little air at 75°, and add to it, but allow the temperature with the addition to advance to 85° or 90, and reduce it with the decline of the sun heat, closing the house for the day at between 3 and 4 P.M. with plenty of atmospheric moisture in the house.

In the case of plants in pits or frames add some more soil to the sides of the ridges or hillocks as the roots push through the soil, repeating as necessary until the allotted space is filled. Young plants ought not to become root-bound before they are planted out, for if they once become stunted they do not make free growth afterwards; hence if the position they are to occupy is not ready for them shift them into larger pots.

THE FLOWER GARDEN AND PLEASURE GROUND.

Propagation of Hardy Bedding Plants.—There are several hardy or nearly hardy plants that are very serviceable and effective in summer bedding arrangements. Included among these are *Festuca glauca* and *Dactylis glomerata variegata*, two very pretty Grasses; *Golden Thyme*, very pretty when well coloured and in a small state; *Polemonium caeruleum variegatum*, creamy variegation and good for clumps or inner lines; *Veronica incana*, *Cerastium tomentosum*, *Antennaria*, *Sedum glaucum*, *S. acre elegans*, all dwarf carpeting sorts with white or greyish foliage; *Sedum Lydium*, *Mentha Pulegium gibraltaria*, *Herniaria glabra*, close-growing green carpeting plants; *Stellaria graminea*, *Spergula pilifera aurea*, golden carpeting plants, the latter moss-like and extremely pretty; and *Ajuga reptans*, purple leaves, dwarf-growing. All may be freely divided, and every small piece with a few roots attached, if dibbled in rather thickly in good light garden soil and watered they will become strong and well rooted by the time they are wanted for the flower garden. The carpeting sorts, such as *Sedums*, *Herniaria*, and *Mentha*, may be again divided prior to being permanently planted—in fact, they cover the ground more neatly if small pieces are dibbled in thickly, rather than planting in larger patches. *Polemonium caeruleum var.* is rather slow-growing, and the side shoots of these are best taken off with a few roots attached, potted off singly in 3-inch pots, and placed in a cold frame till established. The fruit borders or any convenient places in the kitchen garden will do for all the rest of the above-mentioned plants.

Dahlias.—Where these were started in a cold house or frame they will now be sufficiently advanced to admit of their being increased either by cuttings or division. The former are best taken off with a heel, and when about 4 inches long placed singly in the centre of 3-inch pots filled with sandy soil and placed in a rather close dry heat till rooted. Cuttings will strike without a heel, but not if the stem be hollow. The old stools or crowns may be cut into several pieces, or as many as can be had with a single growth and tuber attached. Pot them singly into whatever size pot they can be comfortably placed, fairly good soil being employed, and they should be arranged in a close frame until recovered somewhat, when they should be gradually hardened off. Seedlings in pans and in heat to

be placed in a cold frame, and in the course of a few days be potted off singly into 4-inch pots and kept growing in a cold frame till near the end of May, when they should be hardened prior to planting out.

Salvia patens.—This good old *Salvia* is perhaps the most effective tall-growing and blue-flowered plant we have. The cuttings may yet be taken and struck similarly to other softwooded plants. If the stools were started late in boxes of soil, they may be divided and treated as advised in the case of the Dahlias. The rooted cuttings are most readily transplanted from small pots.

Tuberous-rooted Begonias.—There are few better summer-bedding plants than these, and they are gradually becoming popular. Those who may wish to give them a trial are advised to purchase a number of dry bulbs at once from some respectable nurseryman who makes a speciality of them. Dry bulbs just received, or any not started already in the possession of our readers, should at once be taken in hand. Fill ordinary flat *Pelargonium* boxes with good soil, nothing being better than sifted leaf soil and loam in equal proportions, with a little sand added, and dispose the bulbs about 4 inches apart each way and just below the surface of the soil. Place them in a cold frame and allow them to grow slowly, gradually hardening them off by the end of May. In this manner sturdy well-rooted plants can be transplanted with a trowel into a necessarily rich border or bed without any check being experienced, and will eventually prove superior in every respect to any that may be started in small pots, and which are almost certain to become rootbound and starved. This year's seedlings, if transferred from the pans in which they were pricked out into boxes of good soil, kept in gentle heat till the middle of May, and then gradually hardened off, may prove serviceable; but as a rule they are much stronger and most effective the second year. The tops of strong plants started early may yet be rooted in heat, and these will form good bulbs for next year's display.

Hardening Bedding Plants.—Much of the space in the houses and pits will now be wanted for the more tender and quicker-growing kinds; consequently the more hardy, such as Zonal *Pelargoniums*, *Pyrethrums*, *Lobelias*, *Calceolarias*, *Gazanias*, *Violas*, and early-struck *Verbenas*, if still in a warm house, should at once be placed in cold frames or pits and hardened off. If they have been already partially exposed they may be shifted outside, but the change should not be too sudden, and some provision in the shape of a temporary framework and mats or curtains must be made for protecting the plants both from frosts and cold rains and wind. Such delicate plants as *Iresines*, *Coleuses*, *Alternantheras*, and *Heliotropes* must still be kept in rather warm quarters, as heavy rains and cold weather quickly damage them almost beyond recovery. Less water should at first be given when any of the above are transferred from warm to cooler quarters.

THE BEE-KEEPER.

VARIOUS PHENOMENA CONNECTED WITH BEES.

THE present time is perhaps the most interesting to the student and thoughtful bee-keeper, especially if his careful attention be directed towards the internal economy of the hive and the various phenomena found therein, to the activity and energy displayed by the bees outside in collecting honey, pollen, water, and propolis, and to the equal distribution of bees over honey and pollen-producing shrubs and trees. Any person of a reflective turn of mind watching this equal distribution of bees over flowers must be surprised. This phenomenon I have often tested when the bees were taken to the moors. When the first bees were let loose a clump of Thyme would immediately attract a certain number, working and gathering with a will from its numerous flowers, but it never became more crowded with bees even after the bees of other thirty hives were liberated. Nor is this all, a flower that one bee can rob of its nectar and pollen is seldom assailed at the same time by more than one bee. On the other hand, if flowers yield more than sufficient for one bee, two and more are frequently found working together. On the French Poppy, for example, which affords an ample morning's supply of pollen, I have observed a dozen bees in one flower at a time; on the Crocus, too, a profuse bearer of pollen, several bees may be observed at some time collecting and packing the golden-coloured pollen in large pellets. It is worth remarking that it is not at all times when the Crocus is in flower that it yields its pollen; the weather must be suitable ere its sheathed anthers containing the pollen open. There is another fact in relation to bees working on flowers that do not yield their pollen but at particular times. I have watched bees working on flowers for upwards of an hour without getting the slightest particle of pollen or honey. When this occurs bees are very liable to be lost, and is a warning to bee-keepers not to encourage them to seek during gloomy weather.

A very common occurrence at this season is finding queen cells being advanced, or it may be a premature swarm, which some people mistake for a natural one; or perhaps the old queen is found dead outside, and sometimes accompanied by young supernumerary ones.

The causes of this phenomenon are, the old queen may be effete (but often a perfectly healthy young fertile queen is so treated), intervening drone, and ragged combs are the cause; in short anything that interrupts the queen in the regular deposition of her eggs incites the young bees to raise queen cells. When such hives produce swarms it is seldom they become profitable the current season; so the better plan is to kill the young queens, return the swarm, and join a fertile queen to it or a weak stock. If the season and hives are so far advanced that drones are likely to be in abundance, a small nucleus or two may be formed, then these held in reserve may be utilised by joining to stocks after the issue of the first swarm. In fact one of the most important matters in connection with profitable bee-keeping is to have always on hand plenty of young fertilised queens from May until September, and the bee-keeper will find it much to his advantage if a young queen be placed at the head of every stock yearly.

My hives are made so that I can have either one or four nuclei in each. After the hive swarms and the young queens are piping I divide my frames into as many nuclei as is desirable, sometimes as many as twelve. If purity of breed or a particular cross is wanted they must be removed from the influence of objectionable drones, which ought to be at least five miles distant. I think that bee-keepers would be looking to their interests if they would study what are the best crosses. The best I have found are, first, a pure Cyprian queen crossed with an Italian drone, then the two in the next generation crossed with Carniolian drones. This year these crosses are far ahead of all the other, and last year both stocks and swarms exceeded in weight those that did not swarm. This present spring they worked at as low a temperature as 42°, of course not on flowers but on peameal.

While the foregoing notes point to the cause of premature swarming, I will now explain other phenomena with unsettled swarms and queen-encasements which occur, often giving trouble and anxiety to the bee-keeper, and very often resulting in the loss of the swarm. Unsettled swarms, or swarms that leave the hive after being hived, are caused first by a scarcity of meat at swarming time. To prevent this is to put the bees into a hive containing a little comb and feed liberally; a second cause is when the bees have fixed on a place to swarm beforehand, such as in a roof, tree, rack, or other crevice, or in an empty hive carelessly or wilfully left as a trap. Artificial swarming then is the best preventive. A third cause of leaving the hive is when stronger bees or an ejected queen from some other hive joins the swarm. In either case the bees will not settle, the queens are encased, and sometimes both are injured or killed, but often both are protected for some days, swarming several times daily during the delay and excitement. In such cases both queens should be searched for, caged, and the bees well sprinkled with very thin syrup scented with a little peppermint, then the desired queen may be joined to them. Such accidents occurring to swarms is sufficient for the bee-keeper to adopt artificial swarming, notwithstanding that what may be said in favour of natural swarming.

In making artificial swarms care should be taken that the old queen has not been superseded by a young unfertilised one (as described above), because, if so, both stock and swarm are likely to be ruined. In all cases of artificial swarming make sure that there are plenty of eggs and larvæ, and always leave as many bees as will rear and hatch these. If honey is scarce feed swarms liberally; and keep in mind, that though flowers are profuse at present, the yield of honey may be scanty—in fact, is seldom otherwise at this season. It is better to give each stock a few pounds of sugar to keep them advancing than to allow them to suffer. A little profit must be expected this season.—A LANARKSHIRE BEE-KEEPER.

SYRIAN BEES, LIGURIANS, &c.

"K. B. K.," (page 293), while saying "By all means let us face the truth," takes no pains whatever to do so, but bases his arguments on misquotations, and, what is worse, misrepresentations. Let us see. He quotes an article on page 132, vol. xx., of the *American Bee Journal*, and in it he would see a certain article is referred to page 38 by Mr. Benton, and one on page 500 for 1883 by the same writer. Anyone carefully reading these three articles will see that there are three distinct races of bees in question—namely, Syrian, Palestine, and Cyprian; and this "able bee-master" (Mr. Doolittle) calls the first two indiscriminately "Holy Land," and cannot tell one race from another, or by appearances from Italians; in fact there is no clear evidence that he has ever seen any Syrians or pure bees of either of the three races. In his letter on page 500 he gives reasons for doubting their purity as "Holy Lands." Then, "K. B. K.," to make matters worse, tries to show that some questionable Cyprians are Syrians, and talks about their stinging under the influence of smoke. In my letter on page 253 I said Syrians must not be smoked. I may say I have tried the Palestines, and do not want any more of them, because I cannot handle them with any comfort, as they are so fierce.

I do not care to notice "K. B. K." further for trying to face the truth in such a truthful way; but while I am on the subject I will say they are very much "befogged" in America regarding the pure races of bees, editors of bee journals being as bad as anyone. They call

Syrians and Palestines indiscriminately both "Holy Lands" and "Syrians." The editor of the *American Bee Journal* for April 2nd, page 218, ignores Palestines, and says all bees in America have come blacks, Italians, Cyprians, and Syrians, and no one seems able to tell any of the three races from Italians except when they sting, and this appears now to be their test for purity. Again, every bee-keeper there thinks there are no black bees in Italy, whilst as a matter of fact there are few others. Mr. S. Stutterd (one of the translators of Dzierzon's "Rational Bee-keeping") writes in the *British Bee Journal* for April 15th, page 140, that he has not been able to see a single Ligurian bee, even in Liguria itself, all being the ordinary black kind. What Ligurians (?) we get come from near the Alps, both in Switzerland and Italy, so give another instance of misnaming bees in America. *Apis dorsata* is known as "the great bee of Jarna," so Mr. Benton went to Jarna to get some, and found they did not exist there, but found them in Ceylon, thousands of miles away.

In reference to the letter of "A. Tyke" (page 293), I may state that the £20 profit on one hybrid stock of Syrians was made by the editor of the *British Bee Journal*, and will be found at page 127, vol. ix., and was made from swarms and honey only, and did not include a single queen sold or prize obtained on honey in twelve 2 lb. sections. The "£7" is a misprint, and should have been printed "seven"—viz., one stock increased seven, or one to eight, and is to be partly found in the *Journal* above named, page 145, vol. ix. The writer speaks of them as Syrians, but I have no difficulty in recognising them as "hybrids" from his account.

No doubt more information and hints as to management on these bees would be both interesting and profitable, and if space could be found I might try to do justice to the subject, quoting the experiences of some of the bee-keepers in Europe and America, as well as giving my own. When handled on a sunshiny day without smoke or jar the pure Syrians are tamer than the gentlest Ligurians. It must not be understood that I wish to condemn the blacks, nothing of the kind, they have stood their ground well, and are very good bees. My object is to improve them. Ligurians will not do it, the cross being vicious and addicted to robbing, and I think it is unreasonable to expect to improve a good bee with a worse.

I am obliged for information regarding the Blythe—or "Bligh"—should it not be?—competition. The rules do not provide for any distinction being made between the different races or cross of bees, though as "A. T." says, all are eligible simply as bees, therefore a young queen meeting with an undesirable mate could not be replaced by one which had, and so the different bees cannot be tested under the rules as at present drawn up.

I wish "J. P. S." on page 314 had taken a little care to try to understand the peculiarities of his Cyprians; for although I have not had sufficient experience with them yet to warrant me in giving an opinion, I do not think, however, they are as bad as some would make it out. All these eastern bees must be studied and managed according to their peculiarities. You might just as well expect to handle a black stock without smoke as Cyprians; and Syrians with it. "J. P. S." I should think, is confounding Syrians with Palestines from reading the *American bee papers*. If he will take the trouble to get a pure queen from Mount Lebanon, and have as many daughters reared from her mated with black drones as he can find strong stocks for, give them plenty of room and food to breed early in the spring, he will have plenty of supers filled from the Clover. To compare their working, storing, or wintering qualities with any other bees is like comparing Apples with Crabs. My favourites so far are the true Syrians from the Lebanon as sent by Mr. Frank Benton, who introduced them to bee-keepers, and is, I believe, the only exporter of them. Just to show the superior qualities of the first cross with blacks, in spring I shall find them very strong. I crowd them up, give them one or two quarts of thick syrup all at once (not a quarter pint of thin syrup every night through one pin-hole), which they quickly convert into brood, and by the time Apples are in bloom and all Nature looks gay they will have 14 square feet or 76,000 young brood, with twice that number of hatched-out bees. As they fill the frames solid with brood and keep it all in one compact mass there is no extracting from brood combs. I get a large early harvest (mostly my best) and could if I wished have three full stocks for the Clover, and all with less trouble than is usually bestowed on one, which is a great consideration even if I have proportionally no more honey.—HALLAMSHIRE.

TRADE CATALOGUES RECEIVED.

James Veitch & Sons, Chelsea.—*Catalogues of New Plants for 1884 (Illustrated), and Bedding Plants.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or

members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Royal Botanic Society's Schedules (A Reader).—These can be obtained on application to Mr. Coomber, Royal Botanic Gardens, Regent's Park, London, N.W., if there are any remaining for distribution.

Fruit Growers (J. C., Barnsley).—The subject on which you have written shall have our consideration.

Seedling Primrose (J. W.).—The flower, which was much withered, appears to be distinct and the variety worthy of preservation. Its peculiarity consists in the serration of the segments, giving the flowers a fringed appearance like the best varieties of *Primula sinensis*.

Preserving Dahlia Tubers (A. Gardiner).—Some of the Pompon and single varieties, especially when the plants are small, produce such small tubers that they are very liable to shrivel during the winter if kept too dry; at the same time, if they are too wet they will decay, while of course they must be kept from frost. There is no better plan of preserving tubers dug from the ground than to first dry them and then place them in boxes, covering the roots and crowns to the depth of an inch or two with a mixture of cocoa-nut fibre refuse and sawdust as nearly dry as possible, short of being "dry as dust," and keeping the boxes in a temperature between 40° and 50°. The reply to your question was in type last week, but crowded out in making up the pages.

Abroma augusta (L. U. G.).—In the paragraph on page 324 the specific name of the above plant was misprinted *angusta*, as you correctly observe, but your opinion that *angusta* means smooth is totally inaccurate. Consult a Latin dictionary. If you read the note again you will see that you have misunderstood the statement in reference to this matter.

Allium neapolitanum (C. U., Brixton).—This plant was figured in our issue of May 31st, 1883, page 451, and with it were given some cultural and descriptive notes. It is a native of south Europe, and though hardy in most parts of southern England, requires a warm border or cool house to insure its safety and success. In pots it thrives very well, needing a light, moderately rich, loamy compost, and plenty of drainage. Large quantities of the flowers are imported from the continent early in the season, and find a ready sale in the London markets.

Dioscorea Battatas (Pen and Ink).—This, the Chinese Yam, is, we presume, the kind to which you refer. We have grown it successfully in a sheltered garden in a southern county, and produced an abundant supply of tubers, but they were not enjoyed by many palates. The tubers were started in pots in a light moderately heated pit, much after the manner of starting Dahlias, and the Yams when established and growing freely were planted in a trench in which decayed vegetable matter, such as leaf soil, with which a little wood ashes were incorporated. Stakes were placed for the plants, up which they found their way after the manner of *Convolvulus*. Fine weather in June was chosen for planting, the tubers being placed in pots towards the end of April or early in May. Medium-sized whole tubers were chosen for planting, but the larger tubers no doubt might have been cut and planted in portions; we, however, did not try them, as we had always plenty of whole tubers. The other subject you mention shall have full consideration.

Recommending Garden Requisites (Financier).—It is quite impossible that we can do anything so invidious as to recommend the "best and most useful" article of any kind where there are so many that are equally good, but which may vary slightly in their action under particular circumstances. You can obtain lists of testimonials from vendors who advertise in our columns, and after a careful perusal of them you will not be very likely to err in the choice you may make. If we were to recommend the products of any firm as the best we should practically condemn all others unjustly, and this no one can properly expect us to do.

Cineraria maritima (H. E.).—Your plants are attacked by one of the leaf-mining insects, which it is extremely difficult to destroy without injuring the plants. We advise you to pick off all the worst leaves and burn them, and then proceed experimentally with a mixture of petroleum and water. We have seen the maggot in the leaves of Celery killed by syringing the plants with such mixture at the rate of 2 ozs. of the oil to a gallon of soapy water, and this did not injure the foliage; it was applied, however, in the evening, and the plants were shaded from the sun the next day. Had it been applied during a sunny day the plants would probably have been injured. We should try only half the quantity of petroleum at first for the *Cinerarias*, and note its effects on a few plants, before syringing them all. The oil and water must be incorporated as much as possible by violent agitation, as, if allowed to stand, the former will naturally float on the top. It mixes better in a solution of softsoap than in pure water.

Vine Laterals (H. S.).—You say the laterals on the original stem of your Madresfield Court Vine are only from 6 inches to 9 inches long, and showing bunches, but do not say how long the growths are on the other rods, which we presume are satisfactory. There is nothing remarkable in the bunches showing on laterals 6 inches long. Their mere length is of no moment, but their strength or weakness is a point of importance, and some of them may not be strong enough to carry the bunches that are showing. One bunch to each strong lateral is sufficient; and if the canes are short-jointed, and the laterals consequently close together, some of them should be removed. A suitable distance for them is about 15 inches apart along each side of the rods, as then the foliage has space for development; but if the growths are closer together it has not, and without good foliage you cannot have good Grapes. You say you find young canes produce the best bunches. This is generally the case, and does not this circumstance supply the answer relative

to the growths on the "middle" rod being weaker than the others? We suspect that rod to be older than the others, but you do not say so. Your other question will be answered in a future issue. Your address has been handed to the publisher. When business and editorial matter are mixed together confusion is certain to arise, as the two departments are distinct. You only sent stamps sufficient for four papers, and they will be sent to you.

Vine Leaves Curled (J. T. S.).—When bright sun suddenly occurs after several days of dull weather there is always great danger of the foliage scorching, as in the example you have sent. Assuming that the border is moist, you will do well to spread a little netting over any Vine that shows signs of flagging, this usually being a precursor to the curling of the leaves, or a sprinkling of limewash on the glass with a syringe has the same effect, and it is easily washed off again. You appear to have done right in damping the house, but you permitted the temperature to rise dangerously high, and your other Vines cannot but have had a narrow escape. Your night and fire heat temperatures are correct, but you must be particular in opening the top ventilators (slightly at first) very early in the morning, or half an hour at the most after the sun shines on the house.

Millipedes in Soil (R. B.).—As your "potting soil is full of millipedes" you must destroy them before using it. This you may do easily, and also render the soil more fertile by the process. The remedy is by baking it by placing it in trays and making it hot over a fire. With a brisk fire and an old tea-tray you may soon prepare a quantity of soil, which, however, must be sprinkled with water and made properly moist before using. You will be surprised to find how well all kinds of bulbous and softwooded plants will grow in soil that has been thus treated, while you will neither have worms nor millipedes in your flower pots. It is very difficult indeed to destroy these pests when they have found their way into bulbs. The safest of all remedies is lime water—a lump of lime as large as your hand with five or six gallons—and it should be applied in a perfectly clear state.

Woodlice in Mushroom Bed (W. B. G.).—If you cut Potatoes in halves and scoop out much of the inside of each portion and place them about the beds they will attract numbers of these insects, and they may be instantaneously, hence painlessly, killed by shaking them into boiling water. Boiled potatoes enveloped in a little hay and placed in empty flower pots and these laid on their sides prove enticing to woodlice, while pieces of parsnips boiled in an arsenical solution are deadly baits. We do not think you have much to fear from millipedes, which may be caught in a similar manner as woodlice. They have a partiality, however, for decayed matter, and do not object to a decaying Apple or bread smeared with treacle. If there are fissures at the sides of the bed the insects will congregate there, and boiling water poured in will prevent their coming out again, but it must not be sprinkled on the surface of the bed.

Repotting Ericas (W. W. W.).—The advice that was given in a recent issue not to attempt to liberate the roots from the soil when repotting applies equally to summer and winter-flowering Heaths. A little root-disturbance by removing the crocks, also by clearing away a portion of the loose surface soil, is all that should be permitted in transferring Ericas from small into larger pots, and even in those respects the work of liberating the roots must be done with great care and much caution. In potting these plants it is important that both the soil in which the roots are established, and that to be used is healthily moist. If either too wet or too dry success will not follow. The new soil must also be pressed as firmly round the roots as the old is, a blunted stick being used for that purpose. Many Ericas are spoiled by potting them too lightly and disturbing the roots needlessly.

Peas for August (Brevity).—It is utterly impossible for anyone to answer your question categorically, simply because no one can know the exact character of the weather you will experience during the season. The varieties named will probably need from fourteen to sixteen weeks from the time of sowing to the time of gathering, and you had better, therefore, sow a portion at once, and the remaining portion as soon as the plants from the first sowing appear through the surface of the ground. For producing large pods it is often advisable to sow in trenches prepared as for Celery, but with a greater depth of soil and manure, the surface of the rows after the seed is covered being 2 or 3 inches below the general level of the ground. Thin sowing is advantageous, or at least early thinning, as the plants will be quite close enough if they are 2 inches apart, two or three rows at the distance indicated being provided in each trench according to its width. Placing the sticks to the plants early is also of importance, as if the plants are suffered to fall over they seldom grow luxuriously afterwards. Grown in trenches any quantity of liquid manure can be given, and the finest Peas cannot be grown without it. The pods are also still finer if the plants are topped after four or five pairs of pods are set. If you want Peas for exhibition you had better top some when three pairs of pods are set, as you will then have the better chance of having fine pods at the time you need them. This is a matter, however, in which you must exercise judgment at the time, as no one can tell you exactly what to do two or three months hence.

Marechal Niel Rose Scorching (A. S. D.).—A tree so large in a border so small needs a very large quantity of water, and we have little doubt that the roots have been too dry, perhaps especially round the sides of the pit or border. A heavy dressing of soot, covering the surface of the soil an eighth of an inch thick, and watering it in with four gallons of tepid water, would be almost certain to have a beneficial effect, as would a similar application to your Jean Ducher, of course limiting the quantity of water to the requirements of the plant, erring, however, if you err at all, in giving too much than too little. Defective root-action, or, what amounts to the same thing, inadequate support, is one of the chief causes of the blooms not expanding. The glass of your house may have lens in it, and in this case light shading may be needed, and if so it should be given; but, generally speaking, healthy Roses well supported and growing in a well-ventilated house will endure full sun with impunity, even benefit.

Aphides on Lettuces (T. R.).—If the Lettuces are far advanced for use—that is, nearly ready for cutting, any deleterious applications would impair their quality. If the plants are young you may syringe them with a solution of softsoap, as you propose; but if they are of good size and the present leaves intended to be eaten, we know of no better method of eradi-

cating the insects than by syringing the plants with water heated to 120°. This will not injure them, while it will destroy many of the insects. If you have not a thermometer you may test the water with your hand; if you can endure its immersion for a quarter of a minute, but not longer, it will be hot enough to dispose of the green fly if it is forcibly applied on two or three consecutive evenings. Try its effects on a few plants at first, experimenting with half a dozen, also with water even a little hotter, and note the results the following evening. You will then find by experience how to proceed for destroying the insects without injuring the Lettuces.

Insects (J. G. M., Liverpool).—The specimens sent belong to the species of beetle called the bacon beetle (*Dermestes lardarius*), some being larvæ, others mature beetles. Their particular food is bacon and ham, hence the name, but they also devour skins and display cannibalistic tendencies. They would not meddle with any kind of fruit or vegetable. Where a colony of them have established themselves in a room there is no method of dealing with them except that of removing all that can be discovered, looking particularly into any cracks or nooks where the beetles might hide. To keep them out of any room a powerful odour is efficacious, such as the smell of paraffin or of a herb, such as Pennyroyal, dried.

Daisies on Lawns (Irish Subscriber).—There is no doubt about the value of household slops for applying to lawns; indeed, liquid manure of almost any kind is beneficial. We have recently inspected a lawn that has been immensely improved by being watered with the diluted drainings from a manure heap. The presence of Daisies in lawns is nearly always indicative of poverty of soil. An excellent dressing is a mixture of superphosphate of lime and nitrate of soda, two-thirds of the former and one-third of the latter applied during showery weather at the rate of 2 ozs. per square yard at intervals of a fortnight. If dry weather prevails it is a good plan to well water the lawn before applying the fertilisers, and then again afterwards to convey their virtues to the roots of the grass. Mixtures of guano and salt and soot and salt also act beneficially, so also do bonemeal and wood ashes. We mention these different ingredients in order that you may use what is the most convenient or readily obtainable. The most effectual mode of destroying Dandelions and Plantains is to drop a little sulphuric acid into the heart of each plant, as was recently recommended in these columns. Some persons have found lawn sand effectual in destroying Daisies.

Vines Scorched (X. Y. Z.).—The leaf sent is seriously scorched. The cause of this is the excessive transpiration of moisture from the foliage. Whenever this escapes more rapidly than it is supplied by the roots, first a slight flagging, then a shrivelling of the foliage follows. Vines growing so luxuriantly as yours appear to be doing need much water, often more than they receive; and you had better examine the border and ascertain whether the soil is moist or not quite to the drainage. They also need great care in ventilation, especially in the gradual admission of air very early in the morning. Although you do not quite close the house at night, we fear you do not always admit more air sufficiently early, or that you allow the temperature of the house to rise too high at times, and then throw open the ventilators too wide to reduce it. The size of the leaf and its thinness of texture leads us to the conclusion we have arrived at. It is certainly not such an example as a free-growing Vine would produce under a judicious system of ventilation of opening the lights at intervals in advance of the increasing temperature, and preventing its reaching its maximum by a rush. If we are mistaken in our opinion, and if the Vines have had sufficient water, and there has been no mistake in ventilating the house, then the only thing that can be done to prevent the collapse of the foliage is to slightly shade the Vines when a bright day occurs after a term of dull weather. It is often necessary to do this, and frequently shading is resorted to just after the injury is done. A little hexagon netting suffices, or a slight sprinkling of limewash on the glass. Shading Vines is, generally speaking, a measure to be avoided as far as possible, but it is decidedly preferable to scorched leaves. You say nothing about the temperature you maintain in the house.

Insects on Ferns (T. H.).—The pest is a small species of *Oniscus* or woodlouse, as you appear to have conjectured. They flourish in moist mild winters, and are apt to be very troublesome to a variety of plants during spring, especially those in pots. Trapping them is found to be the best plan of taking them, small pots being placed in their haunts filled with dry horse droppings, or preferably with slices of boiled potato or parsnip, which they will discover and swarm upon. They can then be shaken out into boiling water.

Name of Fruit (E. J.).—We have taken time to examine your Apple and to compare it with others, but are unable to determine its name. It is probably a local variety, of which there are hundreds that have never been authoritatively named.

Names of Plants (Somerset).—As near as we could ascertain from the crushed specimen received the tree is *Acer Pseudo-platanus*, or some variety of that species. (W. H. M.).—Specimen imperfect, but apparently it is *Euonymus europæus*. (J. G. M.).—*Doryopteris palmata*. (G. C.).—1, *Narcissus bicolor* Horsefieldi; 2 and 3, double varieties of *Narcissus Pseudonarcissus*. (T. B.).—1, *Begonia nigrescens*; 2, *Begonia odorata*; 3, not recognisable; 4, *Dendrobium densiflorum* album. (J. W. B.).—1, cannot be determined without flowers; 2, *Lygodium scandens*; 3, *Myrsiphyllum asparagoides*; 4, *Selaginella uncinata*; 5, The varieties of the ornamental-foliage *Begonias* are now so numerous that we cannot undertake to name them.

COVENT GARDEN MARKET.—APRIL 30TH.

No alteration in prices, but clearances more readily effected.

FRUIT.

		s. d.	s. d.			s. d.	s. d.
Apples	½ sieve	1 6	to 5 0	Oranges	100	6 0	to 10 0
Chestnuts	bushel	10 0	0 0	Pears, kitchen ..	dozen	1 0	1 6
Figs	dozen	0 0	0 0	„ dessert	dozen	1 0	5 0
Filberts	lb.	0 0	0 0	Pine Apples English ..	lb.	2 0	3 0
Cobs	per lb.	1 3	1 6	Plums and Damsons ..		0 0	0 0
Grapes	lb.	5 0	10 0	Strawberries	lb.	2 0	6 0
Lemons	case	15 0	21 0	St. Michael Pines ..	each	2 0	8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	0 9	to 1 6
Beans, Kidney lb.	1 0	1 6	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 0
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	0 0	0 0	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	„ Kidney cwt.	4 0	5 0
Carrots bunch	0 3	0 4	„ New lb.	0 4	0 0
Cauliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 6
Coleworts doz. bunches	2 0	4 0	Scorzonera bundle	1 6	0 6
Cucumbers each	0 3	0 6	Seakale basket	1 0	1 0
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 6
Herbs bunch	0 2	0 0	Spinach bushel	2 6	3 6
Leeks bunch	0 3	0 4	Tomatoes lb.	2 0	3 0
Lettuce dozen	1	1 6	Turnips bunch	0 3	0 0



IMPROVING AND REGULATING THE SUPPLY OF FRESH BUTTER.

(Continued from page 336.)

IN continuation we will refer to the popular or customary mode of allowing or compelling the cows to go dry without yielding profit at all for a period of three months, more or less, in accordance with the time they are expected to calve again. To give an instance of the manner in accomplishing the object which we call unnatural, unprofitable, and afterwards attended frequently with serious results, we quote from an article published in the *Agricultural Gazette*, February 24th, 1884, by Mr. J. H. Walker, Worcester, Mass., in the United States, as follows—"Two months before a cow is due to calve every kind of food excepting dry hay, straw, and corn butts should be taken away from her, and only two quarts of water daily be given to her until she is dried off. Her milk should be drawn only once a day for two or three days. Milk every drop from the udder when any is taken. Rub and manipulate the udder very gently, just enough to prevent caking. Milk once in three days, then once in four or six. Dry as fast as it is safe. Some good cows will dry in one-fourth the time it takes to dry others. After you are sure the milk glands are dormant commence to give her, with her hay, dry oats. From that time until she calves give her only dry feed, hay, straw, corn butts, and oats, with roots or shorts enough to prevent constipation until she shows she is within a day or two of calving. From this time give a few potatoes or other cooling and relaxing food until she calves. After she calves give her a table-spoonful of nitre in warm water twice a day, or oftener if any fever appears, and feed very sparingly for a few days with relaxing drinks. Make haste slowly in getting her back on to hearty butter-producing food."

This perhaps may be one of the best methods which can be adopted for the purpose of drying or stopping the supply of milk, but the time here spoken of is limited to two months before the next calf is due. It is, however, the act of stopping the supply, whether it is two, three, or four months, of which we complain, for it is unnatural, because as wild animals like the white Chillingham cattle, would continue in milk without any interference at all except the spring of milk which would occur in the anticipation of another offspring. Again, it is unprofitable for the dairyman to lose ten or twelve weeks' produce of milk and butter out of twelve or thirteen months between the periods of calving, because feeding goes on although the returns of produce have been stopped. It is also serious, because it frequently happens that inflammation of the udder and puerperal fever set in after calving. Mr. Walker after advising dry food before calving, no doubt with the object of preventing any internal accumulation of fat in the cow; but he goes further, and advises nitre being given if fever appears, thus showing that it is commonly expected more or less when animals are dried of their milk prematurely, whereas it is by no means a natural result if the animals continue a milk record down to the period of calving. But these are not the only ill effects arising from shortening the milking period, because it is frequently attended with the loss of one or more teats by the caking or clogging of milk in the udder, especially in the case of great milkers; nor is it so easy, although Mr. Walker's system may be correct, to meet with men when in charge of and entrusted with the man-

agement of the cows to find them carefully and willingly carrying out the necessary orders.

There is yet another point to be considered, for in the system of drying cows of their milk prematurely in a dairy herd which are required to breed animals for maintaining the numbers of the dairy it is more than likely, that the short milking periods having been effected by compulsion, that future generations will also yield milk for short periods only, or in other words it will become hereditary, and the young stock succeeding prove capable of giving only a short supply of milk like that imposed and restricted in their dams. We will now hear what the advocates of the short milking period have to say in their own defence and in support of compelling the animals to cease yielding milk at any given period. They say that a continuation of the milking period up to the next calving time injures the constitution and reduces the quantity of milk for a certain period afterwards, at the same time weakening the calves when they come and reducing their size; at the same time they declare that the cows will not live so long in the herd if no period is allowed for them to be out of profit by prematurely drying of their milk. Supposing all these points are true in the practical management of a butter-making dairy, which we do not admit, still there can be no comparison between the advantages gained by the longest milking period and the freedom from losses which are traceable to cows having gone dry and accumulated fat internally, and by death through puerperal fever at calving time.

With respect to the profits of dairymen in butter-making, it is well to consider the disadvantageous results of the popular practice of having nearly all the cows to calve in the spring months and going dry in the autumn; for instead of any benefit accruing, the dairymen are positively not only acting against their own interests by having only a diminished quantity of butter to sell, but they are actually at war with each other by furnishing an over-supply in the summer months and reducing the selling price of their products at that period; and in the winter months, when the price it is not only at the highest, but in most cases actually unattainable at almost any price. This must be a serious loss to themselves, as it is also very difficult for the consumers to obtain supplies without resorting to the use of foreign imported butter, the quality of which in most instances is not only very unpalatable and nauseous, but positively injurious to the health of the class of people who must consume that article or none. This shows at least the way in which the dairymen's interests are sacrificed by their mismanagement in two ways—first, by shortening the milking period and having little or none to sell when the butter is in most request by their customers, and also by not regulating the supply throughout the year by having their cows to calve at all seasons of the year, instead of acting as now upon their own prejudices and the popular idea of having all their cows to calve in the spring. In some cases the dairymen attempt to justify their mode of proceedings by the argument that they seek to keep the cows in profit chiefly while the supply of grass is most abundant. This may be true in the grazing districts where the produce of the arable land is only to be obtained by purchase, or a portion of the grass produce cannot be secured in the silo as ensilage for use in the winter. But our previous remarks go to show that true economy in butter-making consists in furnishing and regulating the supply at all times of the year; and this is in fact the only way in which the butter-makers can benefit themselves by furnishing a supply in the winter months, which is now monopolised by the importers of foreign compounds of obnoxious ingredients. We consider the best policy in dairy management is not to allow the cows such short periods between their times of calving, but to extend the period by only taking a calf once in twelve or thirteen months, and continue the milking and butter-making during the whole interval between the calving periods, and feed the animals so that the last pound of butter should be as good as the first, which is the true commercial and practical view of the subject.

Let us see what records of milking have been substantiated both in America and on the continent. Mr. George Willis, in a paper read before the Nantwich Association, says, "I may tell you that I have seen in America a cow give 74 lbs. of milk in one day. I have also before me the milk records of some Holstein cattle kept at Little Falls in Western New York, showing that one cow six years old is credited with 84 lbs. of milk given in one day, 2360 lbs. in one month, and 18,004 lbs. in one year." Again, we find Mr. Jenkins, Secretary to the Royal Agricultural Society of England, speaking before the Farmers' Club in London said, "I know a farm in Denmark on which 220 cows have been kept for some years. On that farm there is no permanent grass land, and 220 cows are kept on arable land. I have myself seen a careful account of the yield of milk every day on these farms."

In the year 1841 a yield of butter on the average of 220 cows was 88½ lbs. per cow. But let me tell you that last year the average quantity of milk per head was 641 gallons; the yield of butter was 195 lbs. per cow against 88 lbs. forty years ago." These quotations are taken from the *Agricultural Gazette*, March 31st, 1884, and go far to show how great is the improvement to be made in a well-managed dairy, and at the same time shows that the custom of milking the cows for twelve months between the periods of calving is no new idea, but a well-recognised commercial method of management under the head of Dairy Farming.

After careful consideration of the subject we think that it seems strange dairymen do not as a rule test their cows by weighing the milk and butter product occasionally from each cow, in order that not only justice may be done in the feeding of valuable cows, but actually discarding as worthless those which show a low record of produce; and really in the selection of animals, although it is a question of judgment, it is at the same time a question of outlay by the purchase of superior animals. Again another matter crops up: Why keep more animals than can show a profit in products? for although superior animals may be costly, yet the lesser number eating the lesser quantity of food will yield a profit, when by retaining inferior animals in the herd it proves a loss all round. Great complaint comes to us from a statement at a meeting of the Blandford Farmers' Club in Dorset held in the first week of April, which county has long been celebrated for the sale of superior butter, both of fresh in summer and of well-preserved in winter. "Mr. George Galpin, a Dorset farmer, said there was likely to be a great falling off in the demand for Dorset butter in its present form in the London market. For some time past he had sent nearly all his butter there; but on inquiring the price in London last week a dealer told him that he did not want Dorset butter, as he could not sell it. The dealer in question showed him piles of boxes, each containing twelve 2-lb. lumps of foreign butter very nicely and carefully packed, which he was sure of selling, as it was all alike, whereas in the Dorset butter there was a great variation in colour and quality, the produce of no two dairies being alike." This shows that the butter got up in the factories abroad is all alike in colour, and probably oleo-margarine plays its part in insuring regularity of colour and flavour; when in Dorset butter any attempt to improve the quality by Channel Island cows introduced into the dairy and improved the quality by deepening the colour is rejected. This may prove a very serious and fatal blow to all pure butter manufactories in this county if the middlemen and butter salesmen are allowed to supply the market with foreign butter only.

WORK ON THE HOME FARM.

Horse Labour.—Horses are still employed in finishing off the land where the late sowing of drege has been concluded. It was, however, rather late for sowing, but the field is a cold strong piece of land, and the change from rain to the harsh east winds made it rather coarse and unkind for receiving the Clover and grass seeds for one year's lea; but after extra harrowing and rolling with the ring roller the seeding has been accomplished in fair condition by sowing after the ring roller, in which case these small Clover and grass fall into the grooves made by the rings of the roller, and then by the use of the chain harrows and a smooth roller to finish it off, both the drege and the grass seeds will be enabled to stand the effects of a dry summer, which in our changeable climate may or may not come. Still, some remarkable coincidences point in that direction, for we have not had a dry summer since 1874, years ago; and another remarkable coincidence we well remember, that every decade or tenth year since 1834 up to 1874 dry summers have prevailed, still we have had dry summers between these decades, but we find no similar succession of dry periods like those after searching the records. Whether the summer of 1884 will complete another decade time only will show, but one thing is certain, that we have no record of any cycle of nine years in succession when the Wheat crops of this kingdom have not exceeded the average until our last harvest completed the nine years of average or under-average Wheat crops. The season so far has been remarkably favourable for working and cleaning the land, not only for sowing Lent corn and planting Potatoes, but also for making an early preparation for the reception of the seeds of root crops, such as Mangolds, Carrots, Swedes, and all other early seedings for root crops. Still there is one thing to be kept in mind, that all our preparations should be carried on so as to make land safe in case of a dry summer by leaving the surfaces fine, which cannot be done with so little labour in any other way than by using power sufficient on the land to work it fine as fast as ploughing or scarifying is done. And the home farmer may feel assured that what is correct in the preparation of fallows for roots, &c., in a dry season is also the best practice in the event of a sudden change to a wet season. Where the land intended for Mangolds is fine on the surface the seed may be drilled on the flat with every prospect of the seed vegetating; still we do not object to the soaking of seed in water for two days previous to drilling. When there is a prospect and promise of dry

weather dunging with yard or box manure may be lost labour if we do not get a timely rain so far as the land is concerned, for the land not only becomes too dry whether the dung is laid under stretches or ploughed in on the level, but especially so on the stretch, because the throwing two furrows together to form the stretch and bury the dung brings all the driest and coarsest of the soil on the top of the stretch, which forms a bad seed bed. We therefore recommend drilling on the flat or level with artificial manures drilled with the seed, 3 cwt. of bone superphosphate, 2 cwt. of Peruvian guano, mixed with 1 cwt. of nitrate of soda, will prove a good dressing. If anything in the way of manure should be required nitrate of soda dressings at the time of first and second horse-hoings will be ample if 1½ cwt. each time is sown between the drills. One thing, however, may be borne in mind, that when the Mangold crop is intended to be removed from the land for cattle, we cannot very well have the land too highly manured, so that the Mangolds may not only yield the fullest crop, but the large amount of manure left in the land will come into operation for assisting the cereal crop to follow, whether of Wheat or other grain. Our first seeding for Mustard was done on the 12th of April, and two more seedings are to be made, the crops being each ploughed under with a deeper furrow every time, and the land ploughed and sown again the same day if possible on each occasion, so that the vegetating of the Mustard seed may be assured, which in the summer months is one of the principal points in cultivation for all root or green-manuring crops.

Hand Labour.—The hand-hoeing of early Peas should now be done, for the great art of effective hand-hoeing consists in cutting up the weeds in their infancy; for in case of showery weather if the weeds are strong they may soon become masters of the situation unless destroyed as soon as they show their second leaves. Our Peas are drilled at 12 inches between the lines, which gives just room enough for the hand-hoeing, and at this distance the Peas will soon spread and reach each other enough to keep down many or most of the weeds. Mixing the manures and placing them in bags ready for use often saves labour at important periods, such as haying; but in the case of nitrate of soda being mixed with other artificials, it should only be mixed on the day of drilling as fast as required for use, otherwise it may cake.

Live Stock.—The young cattle, both heifers and steers, may now be on the pastures grazing at daytime, and return to the yards and sheds at night time. The dairy cows, too, may graze on the pastures at daytime, but should not lie out until about the second week in the May month. In fact all stock which graze on the pastures should receive their oil cake or other allowance of feeding stuffs in the shed at morning and evening, or at the milking time for dairy cows. The home farmer in selecting dairy cows of any breed, whether for a cheese or butter-making dairy, should purchase or breed none but animals showing capacious udders and full-sized carcasses, shorthorns or Herefords for the former business, but Guernseys or Jerseys for the latter; but in some cases where the pasture is not very dry or first-rate half-breds, a cross from a shorthorned cow by a Guernsey bull, will furnish strong hardy animals especially adapted for a herd of considerable numbers. We make these observations because it is really painful to notice in various districts of small dairies near to inland towns the wretched and miserable nondescript cows which are kept frequently for the town milk supply. The season is now favourable for selling young sucking lambs, and if they reach 10 or 11 lbs. per quarter in weight they should be sold, for they will not be so much in demand further on in the season; besides which, the ewes if it is intended to feed them for the butcher, will be ready for sale sooner.

OUR LETTER BOX.

Mangold Wurtzels for Cow (Engineer).—By all means grow some Mangolds for your cow. You will find them extremely useful in the winter and spring when other green food is often very scarce. See cultural notes above.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Baromet. at 32 nd and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.			
		Dry.	Wet.			Max.	Min.	In sun.	On grass.		
1884.											
April.											
	Baromet. at 32 nd and Sea Level	Dry.	Wet.	Direction of Wind.	Temp. of Soil at 1 foot.	Max.	Min.	In sun.	On grass.		
	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.	
Sunday	20	29.965	43.7	38.0	N.E.	44.4	47.4	33.3	84.5	29.5	—
Monday	21	29.966	47.7	41.8	N.	44.1	51.4	32.0	97.4	27.3	0.010
Tuesday	22	30.028	45.2	40.1	N.E.	44.0	52.6	31.3	94.8	27.6	—
Wednesday ..	23	29.993	43.4	39.0	N.E.	44.0	53.8	29.9	98.0	26.5	—
Thursday	24	29.857	43.0	38.2	N.E.	44.2	51.7	29.9	95.9	27.4	0.029
Friday	25	29.870	46.0	42.9	N.E.	44.1	51.6	32.8	81.6	29.4	—
Saturday	26	29.845	44.5	41.0	N.E.	44.2	56.5	33.8	91.0	33.3	0.053
		29.932	44.8	40.1		44.1	52.1	34.6	91.9	29.4	0.092

REMARKS

20th.—Generally cloudy.
21st.—Bright early; two slight sprinkles of rain in morning, otherwise fine.
22nd.—Earthquake at 9.18 A.M.; fine, but two slight hail showers in morning.
23rd.—Fair, and some bright sunshine.
24th.—Fine morning; sprinkle of rain in afternoon, and shower at 5.30 P.M.
25th.—Fair, but not very bright.
26th.—Fine till about 5.30 P.M., rain afterwards.
A dry week, with N.E. winds, a small amount of cloud, and therefore large range of temperature, there being frost on the grass on every night but one, and even in the air on four consecutive nights.—G. J. SIMONS.



8	TH	Royal Society at 4.30 P.M.
9	F	Quekett Club at 8 P.M.
10	S	Royal Botanic Society at 3.45 P.M.
11	SUN	4TH SUNDAY AFTER EASTER.
12	M	
13	TU	Royal Horticultural Society. (Fruit and Floral Committees at 11 A.M.)
14	W	Bath Spring Show.

NOTES ON BROCCOLI.

NO difficulty was experienced during the past winter in supplying the table with an abundance of good Broccoli. Commencing long before the late autumn Cauliflowers were finished, they have hearted-in regularly—each sort in its own proper time—and will continue to be of service till early Cauliflowers are plentiful. It is not often that this happens, and recent immunities must not cause us to forget that Broccoli is by no means a certain crop unless it receives special treatment.

It appears to me that the two primary causes of failure are overcrowding and assigning the plants a loose rich soil. Each results in the formation of tall succulent growth, with stems that are much too long to be safe, as it is these long unclothed stems that are the most liable to injury, if not destruction, by severe frosts. If the plants are not killed the sap vessels are so damaged as to cause the largest and most promising of stems to form the smallest of hearts.

The two faults mentioned—viz., overcrowding and over-rich and loose soil—are not confined to the final planting, but are quite as often perpetrated in the seed beds. If the seeds of the early sorts are sown under glass, the seedlings should be thinned out before they spoil each other, and the first favourable opportunity should be taken of pricking them out on a fairly warm border and at such a distance apart as to admit of their transplanting with a trowel. The majority of Broccolis, however, are sown on sheltered borders, and there any of them can be raised quite as early as wanted, though not so surely, especially from old seeds, as when sown under glass. Unfortunately, warm borders are generally limited in extent, and as a consequence the seed is sown much too thickly. In addition the plants very often remain till they are drawn and, in fact, spoilt, as to start with tall plants is anything but a good preparation for severe wintry weather. Those, then, who sow thickly must thin out quickly and prick out the requisite number of plants. Those left in the seed beds will prove of service either in filling up any blanks or for giving away to less fortunate neighbours. As a matter of fact, an open poor piece of ground is the best place for rearing Broccoli, as well as Kales and Savoys, as in such a position, if the seed is sown thinly broadcast and covered with a little fine soil, or very thinly in drills and the soil levelled over them, a number of sturdy plants will be obtained, which during showery weather may be drawn and dibbled out without the loss of a plant. It is the overcrowded weakly plants that are the slowest to recover from the check experienced in the removal, and are thus much longer an easy prey to all pests that are liable to attack them.

Where the plantations shall be made has generally to depend upon circumstances. Few gardeners are able to entirely devote an open piece of ground to them, yet this is best if space could be spared. If planted among other crops they are almost certain to become drawn, while if planted in succession to them they seldom attain sufficient size and strength to be hardy and profitable. Supposing a quarter

has been occupied with Potatoes, Carrots, and other roots, if this can be devoted solely to Broccoli it is not advisable to either dig or manure the ground before planting. All that is necessary is to draw drills with a heavy hoe and to soak these drills either with water, or, better still, if at all poor, with liquid manure. This will admit of planting with a trowel, and which I prefer to cramping the roots into holes formed with a crowbar. If planted among Potatoes, the rows of these should be disposed at least 42 inches apart, unless they happen to be short-topped early sorts, when 3 feet is sufficient. When the Broccolis are planted between wide-disposed rows of Peas, which are, say, not less than 10 feet apart, not more than three rows of plants should be put out, and a distance of 30 inches be allowed between them in the rows. Even then they are apt to become much too tall.

We are obliged to double-crop as much as possible, and our plan is to plant the early varieties of Broccoli as well as late Cauliflowers between the rows of early and second early Potatoes, and the remainder either among main-crop Peas or in succession to early Peas, while the very latest sorts are generally planted on ground just cleared of Strawberries. Those among Potatoes, directly the latter are lifted, have a ridge of soil worked up to them with the spade, this serving to steady as well as protecting them to a certain extent. Instead of arranging the Peas at wide intervals, we prefer to have the rows about 7 feet apart, and to plant a single row of Broccoli between them. In this case the plants are only 18 inches asunder, and alternating on each side of the line, so that half are disposed to fall one way and half the other. The Peas, however, tend to draw them up, and in order to protect the moderately long stems early in November the soil on each side is well mounded up to the heads, this both improving the soil and saving the Broccoli. They are generally cleared off in time for the quarter to be planted with Potatoes or sown with root crops. Those planted on the undug and very firm Strawberry ground are invariably the sturdiest and the hardiest plants; in fact I have seen these only escape when all others not earthed up or otherwise protected have been destroyed.

Lifting the plants and laying them in the ground up to the leaves no doubt frequently saves the crops, but it also materially reduces the size of the heads. So also does laying without lifting, and both are laborious operations. As I have previously intimated, many of us are too greedy—that is to say, we put out too many plants instead of being contented with fewer, which would be more likely to escape destruction by frosts. If market growers find it advisable to dispose Broccoli plants 3 feet apart each way, and that too in the open and not very rich fields, how much more necessity is there for those managing sheltered rich gardens to allow plenty of space. On loose rich ground, then, I say make this as solid as possible; have the rows 3 feet apart and the plants not less than 30 inches asunder in the rows, while on firm or undug soil the rows may be 30 inches apart and the plants 2 feet asunder.

I have previously commented on the qualities of the different sorts of Broccoli, but shall venture a few more brief remarks on this portion of my subject. Veitch's Self-protecting again proved to be the most serviceable early sort, as both Walcheren and White Cape hearted too early to be valued. The former is nearly approaching to Cauliflowers, as it can be had early by sowing in the autumn and wintering in frames, or by sowing in heat in the spring, is very white and good in quality, and also unfortunately rather tender. The popular Snow's Winter White I used to sow early in frames, and never could understand why we secured so few good heads and so many monstrosities. Acting on Mr. R. Gilbert's advice I sowed much later, and on the open border, with the best of results. Mr. Gilbert recommends sowing early in May, but that is not early enough for our cold soil, and the middle of April best suits us. Those who are in the habit of sowing early and have previously partially failed

with Snow's, are advised to sow more seeds at once and note the result. We had Veitch's Spring White in succession to Snow's, and, though rather unfairly treated, from these we obtained some of our whitest and most appreciated Broccoli. It is not particularly hardy. The dwarf-growing Osborn's Winter White was again serviceable and good in quality, and this variety may safely be more thickly planted than some. Leamington is a great favourite with me; and this and Snow's as not being liable to turn in in large quantities at one time, thereby causing an undesirable glut, are the most extensively planted. The presumably latest varieties, such as Model, Wilcove's Improved, Late Queen, and Ledsham's Latest of All, are all turning in rapidly at this time (April 29th), and the latest will be a selection from Miller's Dwarf Late. Model is remarkably good in quality, and not much fault can be found with the other mentioned sorts. The old Cattell's Eclipse is still one of the best late varieties in cultivation.—W. IGGULDEN.

PRUNING DENDROBIUMS.

THERE appears to be much difference of opinion about the pruning of these plants, and, as far as I can gather from what has been written by the advocates of pruning, I think the ideas they intend to convey have been misunderstood. Only a few years ago I was much opposed to cutting away the spent pseudo-bulbs of these plants, but my ideas were then based only upon theory, and I refrained from writing upon the subject until I had proved the system. It is a great mistake to suppose that all Dendrobies are to be operated upon on the same principle, for such is not the case, and it has never been recommended anywhere as well as I can remember; but such notions have evidently become established, hence the communication of "G. W. C." on page 339 of your last issue. I do not think anyone would advise the pruning away of pseudo-bulbs of *D. thyrsiflorum*, *D. densiflorum*, *D. Farmeri*, *D. chrysotoxum*, and others of the same style of growth until they had satisfied themselves that if retained they would yield no more flowers. The length of time they continue to flower entirely depends upon how the plants are ripened after they have completed their growth. What is the object of retaining old stems after they cease to flower and are useless to the plant? The roots of these back growths, although they appear fresh, are dead, as will be found upon examination, in ninety-nine cases out of every hundred; but it has to be proved that they are not kept fresh and plump longer than they otherwise would be by supplies from the growing end. If the whole of these spent pseudo-bulbs are removed with their roots well syringed and supplied with water they will remain fresh and plump for a long time. It is evident that they have little or no force in them, or they would start into growth from some part, but do any of those named ever do so?

In passing, such species as *D. heterocarpum* should be examined that flower only on the pseudo-bulbs the second year after they are made. To cut these down like an herbaceous Phlox would be wrong, because the previous year's growth must be retained for flowering the following season; but those that have flowered, as far as I can form an opinion from practice and observation, are useless, and do not benefit the growths to be made. These old pseudo-bulbs will sometimes produce breaks along the stem, but will do this as freely when severed from the plant and laid or pegged upon moss as when retained upon the plant. When required for purposes of propagation they are much better removed.

I do not perceive much difference in the growth of pruned or unpruned plants of *D. Wardianum*, *D. crassinode*, *D. crystallinum*, and others that make an annual growth and flower upon it after being rested. I cut down a plant of *D. crassinode* that had not been pruned previously, and the growth up it now is just as forward and strong as those containing their old pseudo-bulbs. I shall more thoroughly test this pruning system this year than I have done in the past, for I do not believe there is any advantage to be gained by leaving the old stems upon the plants. If pruned plants possess no other advantage than an improved appearance it is worth practising for that alone.

Dendrobium nobile will flourish admirably under the most severe system of pruning practised by many growers. I can fully confirm what your correspondent "B." says respecting the flowering of *D. nobile* on the previous season's growth, but this is not due to pruning, as may be supposed, but to an early growth well ripened and thoroughly matured, which is the

secret of flowering this Orchid well without retaining two sets of pseudo-bulbs. The old stems if cut into lengths and placed in pots or pans will produce a number of growths, and form useful little plants the first season with sturdy pseudo-bulbs 9 inches or a foot in length. These after they are rested if started early will make good growths, which can be ripened early, and will flower profusely the same as the plant grown by "B."

Calanthes have been introduced into this subject, but they would have been better left out, for they prove nothing either for or against pruning *Dendrobies*, as they are entirely different. The old *Phajus grandifolius* might with advantage be introduced, as many people subject these to an annual system of pruning, for as soon as the young growths are seen issuing from the base the whole of the old foliage is cut clean away and the plants repotted. The plants subjected to this treatment are quite as strong and luxuriant, and flower as well as those treated on the opposite system by retaining the old foliage until it dies naturally.—SCIENTIA.

AËRIAL ROOTS ON VINES.

THE young rootlets which spring annually from the spurs of the Vine have occasioned much controversy amongst gardeners as regards the cause of their appearance. Some writers say the Vine house is kept too moist, others regard it as due to imperfect action at the roots. Experience with different Vine borders, varieties, &c., leads me to believe that it is neither of the above, but that it is more due to the variety of Vines and luxuriance of growth than to anything else. When I entered my present situation the Vines were far from being in a satisfactory state. They were very weak, having been overcropped; the roots were also at fault, being too far from the surface. These grievances, however, were gradually removed. The Vines were pruned and washed, as well as the houses, in the ordinary way; the outside borders were examined in the spring, adding fresh soil, lifting the roots nearer to the surface (those inside being done in the following season). This had a marked effect on the Vines, the young wood being nearly as thick again as the previous year's growth. It so happened that a considerable number of plants were grown in the vinery that season, such as Ferns and Camellias, which required much moisture, yet with the exception of a few aerial roots on a Mrs. Pince Vine not one was to be seen. The following spring the Vines commenced growing much more vigorously than they did the previous year, pushing out strong laterals with good bunches, everything doing as well as could be wished. Just as they were coming into flower they commenced producing aerial roots on the spurs, Gros Colman and Mrs. Pince varieties being the varieties affected that season. Last year they did the same.

This year particular attention has been paid to them. In the early vinery, which is 30 feet long, there are ten Vines growing. Beginning at the north end there is a Mrs. Pince and Black Alicante growing side by side. Mrs. Pince has aerial roots nearly on every spur, on the Alicante not one is to be seen. It so happens that at the other end of the vinery there is a Muscat of Alexandria which is emitting one or two rootlets, and they appear on the spurs that have the strongest laterals. Next to this Muscat is a Gros Colman Vine with large healthy foliage. Some of the leaves measure over 15 inches in diameter, the lateral growths being the thickness of one's thumb, and every spur has a cluster of aerial roots. Then comes a Black Alicante, the same as the one at the other end of the house, with no aerial roots. The other varieties are four Muscats and one Lady Downe's, resembling the Muscat already mentioned.

In another vinery there are seven Black Hamburgs, one Duke of Buccleuch, one Buckland Sweetwater, and another variety, supposed to be White Tokay. The fruit of the latter never gave satisfaction, but being a strong healthy Vine I did not like to pull it out, but inarched a Mrs. Pince on it (with the idea that it might colour better on this stock than on its own roots). This was done last year in June, as it made a fair good growth and ripened pretty well. It is now carrying two or three good bunches, and here on this young rod the aerial roots are now sprouting. Previous to this variety being introduced into this vinery I had never seen one of these roots. I should like to hear other Grape-growers' experience on this matter.—L. S. C.

TABLE-DECORATING.

THERE are few places now of any pretensions where indoor floral decorating does not form a very important part of a gardener's duties, and further, it may be said with a certain amount of truth, that it is carried out much more extensively and on a far more elaborate scale than it was a dozen or twenty years ago, and that during this comparatively brief period great improvements have been made. In all probability the decorating of the future will be as far in advance of the present as the present is over the past, and it behoves the rising generation of gardeners to devote some portion of their leisure to the study of this very important branch of their profession. No amount of reading will, however, alone make a good decorator, and with equal force it may be said neither will a good collection of plants or flowers. To excel in the art there must

be a natural taste and aptitude for the work. Many there are who with scant material at their command will accomplish far greater results in the way of pleasing combinations and telling effects than others will with a plentiful supply of the choicest and best flowers, and this, too, in a much shorter space of time. One great point in connection with our subject is, whatever work you are going to do, whether it be decorating a dinner-table, dressing an epergne, or furnishing a library or drawing-room, study well beforehand and contemplate the effect, so as to be able to picture to yourself the completion of your work before it is begun. By adopting some such rule as this many obstacles are easily overcome, and much time, together with material, such as plants and flowers, will be saved. When we have a definite object in view it is surprising how easily and quickly with a little tact and energy it may be accomplished.

Presuming we have a dinner-table to decorate on which cut flowers and leaves are to predominate, it becomes necessary to ascertain before cutting anything what ornaments in the nature of china, epergnes, glasses, &c., are available for our work. Having done this the tallest must be selected for positions down the middle of the table, and these are generally epergnes. In the dressing of these we cannot lay down any hard-and-fast rule, but there are certain practices to be avoided—viz., overcrowding and the opposite extreme. The principal object to be aimed at should be lightness, elegance, and gracefulness, a proper blending of colours, and a judicious use of Ferns, dried Grasses, sprays of climbers, &c. Fern fronds, although indispensable, should not be too liberally employed; moreover, it is always advisable to have them in character with the ornament in which they are put—i.e., the more bold and striking the latter so it should be with the Ferns. For instance, say we have an epergne or trumpet-shaped glass 2 feet high, we would make very little use of *Adiantum cuneatum*, much rather we should prefer *A. formosum* and other species of a like nature. A few dried Grasses are extremely useful for this kind of work, owing to their graceful appearance. Sprays of climbers for entwining round the supports of epergnes and hanging over the sides, *Ficus repens*, *Cissus discolor*, and *Ampelopsis Veitchii* are also very suitable.

Small globular glasses filled with Maidenhair Ferns and cut flowers should be arranged between the epergnes. In our opinion these look much better when one colour for each glass is employed than they do with two or three. Having placed all the ornaments containing flowers in their proper positions, the arrangement should be completed by laying on the cloth a line of *Selaginella*, this to extend the entire length and breadth of the table, and should be just inside the line of the knives and forks. Quadrants may be formed at each of the four corners, and it will add greatly to the effect if a row be arranged round the dessert dishes.

By way of a change (a very desirable matter in floral decorating) cut flowers may be employed in other ways different from that already described. In many places shallow tin troughs are in great request. These are made of various shapes and sizes, being 1 inch deep and about 2 inches in width. When they are arranged on the table so as to form geometrical figures and designs they have a most pleasing effect. Mounds of moss on circular boards dressed with flowers and Fern fronds are also much appreciated by many. Some little practice, however, is required to do them tastefully, and perhaps it would be for the benefit of the inexperienced to give further details on this point. For instance, say we have to make up a mound on a board 15 inches in diameter, we should first of all require a small well-grown plant of some kind, *Aralia Veitchii* or *Dracæna Cooperi* would do very well. This should be stood on an inverted 6-inch pot placed on the middle of the board, from the edge of the latter to the rim of the pot containing the plant fill in with fresh-gathered moss, which must have a gradual slope from top to bottom, and face with *Selaginella Kraussiana*. In this arrange the flowers, which should be in a continuous line the whole circumference, forming acute angles near the rim of the pot and 2 inches from the bottom of the board, a few Fern fronds to be intermixed here and there, the whole to be finished off with a row round the edge of the board about 6 inches long and resting on the cloth. Mounds of this description placed down the middle of the table have both a novel and picturesque appearance. Much more might be written on the subject, but as this note has already lengthened out into considerably more than was at first intended, further remarks must be left to another occasion.—ET CÆTERA.

THE GRASS GARDEN.

THE note I previously sent on this subject, and which you were good enough to publish, was confined to the consideration of flowers which blossom in the earlier portion of the year. While I at once concede that no flowers are so welcome, so pretty, and so much appreciated as spring flowers, I would not on that account limit the grass garden to spring flowers only. Yet while saying this, it must be admitted that the list

of plants suitable for growing on grass to flower in summer and autumn is short. Such plants must have, as a fundamental recommendation, the quality of taking care of themselves when once they are put out, a capacity for growing and flowering year after year without attention as to staking, thinning out, and transplanting, qualities which the majority of plants are altogether deficient of.

The Pampas Grass (*Gynerium argenteum*) may be named as typical of the kind of plant required. But we are not quite reduced to a sole dependance on this handsome Grass. There are a few others which might be introduced. The common Foxglove is one of the very best, and should be extensively planted close to the stems of shrubs. A packet of mixed seed sown now will produce hundreds of plants to blossom another year. The German Irises and the large-flowered pale blue *Iris pallida* are both well suited for culture in grass. Strong clumps dotted in the open is the best way of managing these.

A most effective foliage plant for extensive stretches of grass is the Giant Cow Parsnip (*Heracleum giganteum*). It grows to a height of 9 or 10 feet, and is best established in clumps of six to a dozen plants. Pheasants are said to be fond of the seeds. Sown now, and transplanted in autumn, these should be strong for another season. Tritomas make a glorious show of colour in late autumn, but unfortunately I have not found them succeed so well as we would think they ought to. It is worth while to prepare a bed, thoroughly cultivating the soil by working a 9-inch coating of manure into the ground, and after the plants are put out mulch the surface of the soil with more manure. If the beds are kept clean the first season, and an annual coating of manure, 4 to 6 inches in thickness, placed round the plants every winter, they will succeed in most places. After the first year the plants should grow enough to cover all bare ground.

Other good plants for employing singly which may be mentioned, are *Astilbe rivularis*, *Spiræa Aruncus* and *Spiræa venusta*, both herbaceous and tree *Pæonias*, *Lychnis chalcedonica*, *Lupinus polyphyllus* and varieties, *Aconitum lycoctonum*, *A. Napellus* and varieties. For covering stumps, the everlasting Sweet Pea, *Clematis Jackmanni* and Honeysuckle, *Clematis Vitalba*, Hop or climbing Roses are all suitable. By way of caution it may be added that it is very easy to overdo planting flowers on grass. As a rule they look much better, and indeed thrive better, in nooks in front of tall shrubs than in isolated positions with nothing round them but grass. When shrubs are small it is not only admissible, but a good arrangement, to plant flowering plants freely amongst them. But this and kindred matters I must leave for the present.—SYLVANUS.

WHAT IS AN AMATEUR?

MR. DODWELL appears to feel himself intensely maligned by a statement that has been made describing him as a nurseryman. But why he should be so irate is a question not easily determinable by unprejudiced people who are so constituted as to be able to calmly consider the whole matter. Is not the trade of a nurseryman an honourable calling? It is usually so considered, and several persons with whom I have spoken are simply astonished at Mr. Dodwell's conduct. The whole question appears to me to lie in a nutshell. Has or has not Mr. Dodwell issued a priced list of Carnations with the object of selling them? If he has done so, does not this constitute him a nurseryman? If it does not, what does? Is it necessary for a man to prove that he has made a profit by trading to be classed as a nurseryman? Assuming for the purpose of argument that Mr. Dodwell has sold Carnations to a very large extent, is he then properly eligible for competing in classes "for amateurs," and winning the lion's share of the prizes with flowers from what, if he publishes a priced catalogue, is to all intents and purposes a trade collection? These are questions of undoubted public importance, and the connection of Mr. Dodwell's name with them arises from the sheer necessity of the case, and it is certainly not mentioned now with the object of causing the slightest inconvenience to a person with whom I have never had the opportunity of speaking. Suppose we substitute the word "dealer" for "nurseryman," and I presume Mr. Dodwell will scarcely deny that he is a dealer, wherein is his position altered?—NEUTRAL.

SPRING FROSTS AND THEIR EFFECTS.

WE have clearly proved the value of even the slightest covering for fruit trees in a season like the present, ordinary tanned netting of 1-inch mesh (double), fastened to a coping standing slightly out from the wall, proving sufficient to preserve a fair crop of Peaches and Nectarines with the temperature at 22°. Another Peach wall, on which the top courses of brick recede from the line of wall, has suffered severely, it being a difficult matter in this case to keep the netting clear of the trees. Apricots, Cherries, Plums, and Pears are all gone. In a climate where such severe frost is possible during the spring months it is absolutely necessary that some protection should be at hand for all the last-named fruits, as well as for Peaches and Nectarines, that we may avoid the disaster of April 23rd. Where there are long stretches of wall it will be

necessary to devise the most economical covering possible, and with the view to attain this end I have thought of a piece of stout deal some 2 inches square firmly secured to the coping, on which again will be fastened an 11-inch board, either let into the first or nailed to it. The length of projection to the end of the board would, together with the 4½-inch coping, be about 16 inches, sufficient, I fancy, to keep the blinds clear of the trees. The tiffany, canvas, or whatever material was used, would be lightly tacked on the board some 2 inches from the edge. It would be used in lengths some 20 or 30 yards each, as this would enable it to be folded up under the board when not required, and thereby save the expense of pulleys, rollers, &c. Some hooked stakes would be thrust into the alley at a short distance from the wall and the canvas fastened to them when let down. That portion of canvas on and hanging over the board could be treated with oil or size and varnish to protect it from the weather; the blinds, and possibly the 11-inch board, would be removed when all danger was past.

Such is a rough idea for the protection of Pears, Apricots, Plums, Cherries, &c. I shall be glad if any of your readers who are already working anything likely to be an improvement on the same from a useful and economical point of view would give the benefit of their experience.

The morning of the 23rd ult. seems to have made sad havoc with vegetation generally, as well as the fruit crops. A large specimen of *Pterocarya caucasica*, perhaps about the finest in the country, is a total wreck; leaves, catkins, and the tiny leaflets just expanding are all black, and the foliage is decaying on the tree. Such old favourites as *Chimonanthus fragrans*, *Wistaria*, *Laurus*, *Sassafras*, and some of the *Magnolias* are nearly as bad. I am glad to say two members of the latter family we value (*glauca* and *macrophylla*) are safe, the sheath acting as a protection to the tender bud beneath.—E. B., *Claremont*.

THE effect of the very severe frosts experienced here on April 22nd and 23rd has proved most disastrous to the wall fruit in this neighbourhood, so much so that the Apricots and Plums are in many places entirely destroyed. The Damsons and Pears, which hitherto promised to be a very heavy crop, have shared a similar fate. In many cases the early-flowering varieties of Pears are completely destroyed; rarely, if ever, has the show of fruit blossom been more abundant.

Up to the present the Apples appear to have escaped injury, and should there be no more severe frost, the display of Apple blossom promises to be quite equal to that of last year. Thousands of trees throughout this county, which were so unusually heavily laden with fruit last season, are at the present moment covered with blossom buds.—H. R. I., *King's Acre, Hereford*.

THE severe frosts on the 23rd and 24th of April were most destructive here, as, the position being very sheltered, everything was much advanced, and consequently suffered severely. Apples and Pears will almost be a complete failure, the unexpanded blossoms of both being killed. Plums and Cherries are also killed. Examining some Quince blooms yesterday, although very backward, I find them quite destroyed. Pears on a west aspect, where slightly sheltered, perhaps one in a thousand Peaches, Nectarines, and Apricots are so far safe as my employer acceded to my request to put up glass coping, from the front of which was suspended scrim canvas, but where the canvas did not quite meet every fruit on the elongated spurs were more or less injured. Two Figs trees under the coping are safe; one unprotected, although in a sheltered position, is much injured, the points of the shoots being quite killed. Gooseberries, where the pruning had been severe, are a total failure; where left unpruned to defeat the frost and the birds, there is a fair crop in the centres of the bushes. Currants are also much injured with the exception of some trained on walls, north aspect. I do not think there will be a perfect bunch. The advantage of having efficient protection is clearly exemplified this season—the value of the crop of Peaches and Nectarines will almost pay the cost. Raspberries are much injured, but not to any great extent. Strawberries, fortunately, were not forward enough to receive damage. Altogether the fruit crop has suffered more than I ever experienced before.—J. GADD, *Belhus, Aveley*.

PRIMULA JAPONICA AT KEW.

BETTER grown examples of this fine *Primula* than those now flowering in the temperate house could not be desired; and if similar success was attained in most gardens this plant would soon become more popular. Mr. Binder, who is in charge of that department, has been very successful with it, having raised many hundreds of fine plants, and his system of treatment may be briefly recorded. The seeds are sown in August in light sandy soil, and the pots are placed in a cool frame, where they remain all the winter. In about eight months from the time of sowing the young seedlings appear, and as soon as large enough they are placed singly in small pots. A compost of leaf soil, good substantial loam, and one-eighth of well-decomposed cow or horse manure, is employed, and at subsequent pottings the plants are transferred into 48 or 32-size pots, being flowered in the latter. During the summer following the time of sowing extremely vigorous growth is made, and the plants now specially referred to attained the size of small Cabbages, the leaves of extraordinary size and substance. As winter approached these leaves gradually died, but the soil was not allowed to become dry, being kept in a moderately moist condition until growth commenced again in

early spring, and attention to this Mr. Binder considers an important matter.

The plants are now flowering, bearing spikes of four to six tiers of flowers, which vary slightly in depth of colouring, but are mostly of a rich shade of crimson. The leaves resemble large Lettuce leaves, but are more substantial, forming a fine rosette, which is a beautiful setting for the majestic spikes of bloom. Either for the decoration of the stages in a conservatory, or (as they are at Kew) plunged round the margins of the beds, they have an admirable appearance, and their utility cannot be overrated.—L. K.

HYBRID CYPRIPEDIUMS.

No genus of Orchids has submitted so readily to the efforts of the hybridiser as the singularly beautiful *Cypripediums*. Certainly much has been effected amongst the *Cattleyas*, but a far greater number of really distinct and handsome hybrids have been obtained from the *Lady's Slipper Orchids*. There appears to be scarcely any difficulty in securing almost any desired cross, and in the majority of cases the progeny present an exact combination of characters, which has been preserved even when the cross has been reversed. This was especially notable in the case of the beautiful *C. Sedeni*; the seedlings from both *C. Schlimii* and *C. longifolium*, fertilised with the other species, resulting in plants that possessed no characters to distinguish them from each other, except perhaps slight variations in colour. In, however, what may be termed secondary hybrids—namely, those resulting from crossing an established hybrid with one of its parents, some surprisingly distinct and beautiful forms have been obtained. Examples of this fact are again well shown by the offspring of *C. Sedeni*. For instance, *C. calurum* is from *C. Sedeni* and *C. longifolium*, and *C. cardinale* is from *C. Sedeni* and *C. Schlimii*, both very handsome *Cypripediums*, and, though partaking of the good qualities of the parent hybrid, are yet easily recognised. Again, by introducing another species we have a third gradation, as is shown in *C. Schroederæ* from *C. Sedeni* and *C. caudatum*, and *C. Ainsworthi* from *C. Sedeni* and *C. Roezlii*. Other examples of the same peculiarity might be given in the case of *C. Dominii*, but it is rather remarkable that there appears to have been no attempt to cross two hybrids.

The great advantage secured by hybridising in this as in several other genera is the greatly increased vigour and floriferousness of the plants so obtained, which has wonderfully added to the horticultural value of the plants. Some, indeed, are in bloom almost all the year round, and most readily cultivated in an ordinary style. The *C. Sedeni* group is especially remarkable for these qualities, and the bright rosy tint of the flowers, so distinct from most other forms of the genus, has still further increased the popular appreciation of these Orchids. So much success has attended the efforts of hybridisers in the direction of improving the growth, flowers, and general habit, that it is somewhat surprising some attempt has not been made to obtain a race of *Cypripediums* that would grow in cooler houses than those requisite for the majority. It would not, perhaps, be possible to cross such extremely divergent types as the ordinary hardy or North American *Lady's Slippers* with the tropical evergreen species, but the experiment would be worth trying. Then *C. insigne* has not been utilised sufficiently, for if the habit of this much-enduring useful Orchid could be combined with the handsome flowers of some others a race of incalculable value would be obtained that, in a gardener's point of view, would far surpass the others.

Undoubtedly there is still a wide field for fresh and meritorious productions in this genus, and it is highly probable that many distinct races will be yet forthcoming while we have such persevering and successful workers as Mr. Seden. By far the greater number of hybrid *Cypripediums* have been raised in Messrs. J. Veitch's nursery at Chelsea, first by Mr. Dominy, whose beautiful *C. Dominii*, *C. Harrisianum*, and *C. vexillarium* led the van of what has grown into a small army of forms. Mr. Seden has, however, paid special attention to this genus, and a large proportion of those enumerated in the list below owe their origin to his skill. As an example of one of the best of these, *C. grande*, of which a woodcut is given in fig. 86, deserves particular attention. This was raised from *C. Roezlii* fertilised with pollen from *C. caudatum* in 1875, but it has been thought that the latter was really the variety *roseum*, also known as *C. Warscewiczii*, at least such is Herr Reichenbach's verdict. It is a remarkably strong grower, producing rich green leaves 2 feet or more in length, the spike of flowers often exceeding these in height by a foot or more, and bearing several flowers. These have the narrow tapering petals of *C. caudatum* 12 inches long, of a delicate crimson hue, and fringed with dark hairs near the base. The dorsal sepal is yellowish, and the lip crimson spotted in white with a greenish tinge in the body. Plants have been shown at the leading metropolitan shows and honoured with first-class certificates.

Another very handsome and interesting hybrid, and one of the

most recent, is *C. Lceanum*, for which a certificate was awarded to Messrs. Veitch at the Royal Horticultural Society's meeting, Jan. 8th of the present year. In the production of this, the comparatively new *C. Spicerianum* has been employed with *C. insigne* Maulei, and it was a subject of common remark at the meeting in question that the hybrid was exactly intermediate in its characters. The dorsal sepal is much like *C. Spicerianum*, but with the purple spots of the other

at least 100 guineas, and it has been stated that the original purchasing price was 80 guineas. *C. albo-purpureum* is also very valuable; a good plant has realised 50 guineas, but a much larger and wonderfully handsome specimen has been priced at 150 guineas.

It is worth notice that the species most largely employed in raising these hybrids has been *C. barbatum* and its varieties, which have been concerned in the production of about a dozen or more, as several of



FIG. 86.—CYPRIPEDIUM GRANDE.

parent; the petals and staminode resemble *C. insigne* Maulei, while the lip is suggestive of the first-named species. But for the striking evidence afforded by this combination of characters some would have been inclined to doubt that *C. Spicerianum* was one of the parents, as it was thought it had not been in cultivation sufficiently long to obtain such strong plants from it.

Perhaps the most valuable of all the hybrids is *C. Schroederæ*, which is, I believe, represented by a unique specimen in the collection of Baron Schröder at Egham. This has been estimated to be worth

the Warnerian hybrids have probably been derived from that species with others. In nearly every case distinct species have formed the seed or pollen-bearing parents, but *C. marmorophyllum* and *C. patens* are both from *C. barbatum* with *C. Hookeræ*, the crossing being reversed. In the majority of these the *C. barbatum* influence can be clearly traced, and it is probably due to this that some have denounced hybrid *Cypripediums* as too much alike.

In the list given below all the hybrids are included respecting which any information could be gained, and it may be mentioned that

those of which it is stated that the parentage is unknown were raised by Mr. Warner at Chelmsford, but the particulars of the species concerned were lost.

Hybrids.	Parents.
C. Ainsworthii	C. Sedeni and C. Roezlii.
C. albo-purpureum	C. Schlimii and C. Dominii.
C. Arthuriatum	C. insigne and C. Fairrieatum.
C. Ashburtoniae	C. barbatum and C. insigne.
C. calanthum	C. biflorum and C. Lowii.
C. calophyllum	C. barbatum and C. venustum.
C. calurum	C. longifolium and C. Sedeni.
C. cardinale	C. Sedeni and C. Schlimii.
C. chloroneuron	C. venustum and C. Warneri.
C. conchiferum	C. Pearcei and C. Roezlii.
C. Crossianum	C. insigne and C. venustum.
C. discolor	Unknown.
C. Dominii	C. Pearcei and C. caudatum.
C. euryandrum	C. barbatum and C. Stonei.
C. gemmiferum	C. Hookerae and C. purpuratum.
C. grande	C. Roezlii and C. caudatum.
C. Harrisianum	C. barbatum and C. villosum.
C. Leeatum	C. insigne Maulei and C. Spicerianum.
C. lucidum	C. villosum and C. Lowii.
C. macropterum	C. Lowii and C. superbiens.
C. marmorophyllum	C. Hookerae and C. barbatum.
C. Marshallianum	C. venustum pardinum and C. concolor.
C. meirax	Unknown.
C. melanophthalmum	Unknown.
C. microchilum	C. niveum and C. Druryi.
C. Morganianum	C. superbiens and C. Stonei.
C. nitens	C. villosum and C. insigne Maulei.
C. oenanthum	C. Harrisianum and C. insigne Maulei.
C. patens	C. barbatum and C. Hookerae.
C. politum	Unknown.
C. porphyreum	C. Roezlii and C. Schlimii.
C. porphyrospilum	C. Lowii and C. Hookerae.
C. pycnopterum	C. venustum and C. Lowii.
C. Schröderæ	C. caudatum and C. Sedeni.
C. Sedeni	C. Schlimii and C. longifolium.
C. selligerum	C. barbatum and C. lævigatum.
C. stenophyllum	Unknown.
C. superciliare	C. barbatum and C. superbiens.
C. tessellatum	C. barbatum and C. concolor.
C. vernixium	C. Argus and C. villosum.
C. vexillarium	C. barbatum and C. Fairrieatum.
C. Williamsianum	Unknown.

As an indication of the respective ages of the hybrids above named, it may be mentioned that they were described in the "Gardeners' Year Book" for the following years, and were therefore either flowered or shown for the first time in the preceding year. 1870, C. Harrisianum; 1871, C. Dominii, C. vexillarium; 1872, C. Ashburtoniae; 1874, C. Crossianum, C. Sedeni; 1875, C. Arthuriatum; 1876, C. selligerum, C. tessellatum; 1877, C. marmorophyllum, C. oenanthum, C. pycnopterum, C. stenophyllum, C. superciliare, C. Swanianum; 1878, C. albo-purpureum; 1879, C. lucidum, C. nitens, C. patens, C. porphyreum; 1880, C. Ainsworthii, C. vernixium; 1881, C. Morganianum, C. porphyrospilum; 1882, C. calanthum, C. calophyllum, C. chloroneuron, C. conchiferum, C. gemmiferum, C. grande, C. meirax, C. melanophthalmum, C. politum; 1883, C. discolor, C. microchilum, C. Williamsianum; 1884, C. cardinale, C. macropterum, C. Schröderæ.

The structure of the Cypripedium flower is peculiar, and so distinct from the majority of Orchids that for the benefit of uninitiated readers a brief explanation may be given. In most Orchids the three sepals are distinct or easily traced; in the Cypripedium, however, the two lower ones are united, so that there appear to be only two. The lip, as is well known, is shaped like a pouch or old-fashioned slipper, and this form is very constant throughout the genus. At the centre of the flower is a peculiar organ, which varies in form from crescent shape to a triangular flattened shield-like body; this is termed the staminode, and occupies the place of the cap and pollen masses in other Orchids. There are two anthers or pollen masses, one at each side of the column, instead of at the top, and partly protected by the shield staminode. By dissecting a flower these characters will be readily perceived, and if anyone is desirous of entering the ranks of the hybridisers they will find no difficulty in doing so.—L. CASTLE.

expanded flowers respectively, or whether he includes all that he could count of undeveloped flowers and buds as well?"

— WE learn with much regret that M. JEAN VERSCHAFFELT, OF GHENT, died on the 20th of last month after a long illness. He was in his seventy-fourth year at the time of his death, and was greatly respected by all who had been brought into contact with him commercially or socially. His name was almost as well known in England as in Belgium, and many recognitions of the esteem in which he was held have been accorded him at various times.

— OF ORNAMENTAL VARIETIES OF PYRUS now flowering one, the most handsome, is P. Malus floribunda, which has large flowers, deep bright red in the bud, but brighter when fully expanded. P. coccinea is another good form, the buds being extremely bright, but the open flowers are lighter even than the preceding. P. Toringo is a curious variety, with diminutive flowers very freely produced, the buds being rich coral red. P. Pollveria has small silvery white leaves, and large cymes of white flowers; P. salicifolia being somewhat similar, but having, as the name implies, narrow Willow-like leaves.

— IT is announced that the BROCKHAM AMATEUR ROSE ASSOCIATION'S nineteenth annual Exhibition is fixed for July 7th, to be held in the grounds of Broome Park, Betchworth, on the invitation of Charles Dobson, Esq., and Mrs. Dobson.

— THE DOUBLE-FLOWED FURZE is now extremely attractive in many gardens, and when planted in suitable positions it cannot fail to be appreciated. On steep banks where little else would live it will thrive and flower abundantly, and on this account is especially valuable. We have seen carriage drives occasionally bordered with bold bands or hedges of this plant, and at this time of year these banks of rich golden flowers are unrivalled by any other garden shrubs for such a purpose.

— AS a curious instance of the variability of flowers under cultivation, an abnormal specimen of NARCISSUS INCOMPARABILIS SEMIPARTITUS in Mr. Ware's nursery is worthy of note. This variety usually has the cup deeply cut into six segments, corresponding with the divisions of the perianth (petals), but in the departure referred to both perianth and cup divisions are in fives, which, as our botanical readers will remember, is an unusual number in the monocotyledonous plants. The flower is otherwise perfect, not malformed in the slightest degree, and has a rather pretty appearance, the petals radiating very regularly from the centre. Some other irregularities are observable in the Daffodil quarters of the above nursery, but this is the most interesting.

— DIGGING IN SPRING.—We have received what appears to be a portion of an unfinished communication on this subject, or at least it contains neither name nor initials; and in the same envelope a lengthy series of notes, evidently taken at some trial when "John Wood's claim" was under examination, but who "John Wood" is or who our correspondent is, or whether the notes have been sent to us accidentally or not, we have no means of determining. Perhaps the writer of them, whose letter appears to have been posted at Otley, will communicate with us on the subject.

— AT a recent meeting of the Royal Botanic Society, Gardens, Regent's Park, held on Saturday, Mr. J. P. Gassiot (Vice-President) in the chair, Professor Bentley mentioned that in the last quarterly record of the Society was a note by the Secretary upon the fruiting in the Society's greenhouse of the COCOA PLANT. So far as he could ascertain, it was the only instance known in this country, and he was happy to say the fruit seemed likely to reach maturity and ripen its seeds. It was interesting from its being one of the very few plants that produced their flowers directly upon the main stem and large branches. The generic name "Theobroma" was given by Linnæus, and signified Food for the Gods; but it had not always been so regarded, for Belzoni, writing in the sixteenth century, said it was a drink more fit for pigs than men. Speaking of the consumption of cocoa, he said that the amount imported in 1820 was only a quarter million pounds, in 1866 it had reached four million pounds, in 1873 eight million pounds, and at the present time was probably not less than twelve million pounds per annum. Dr. A. Prior read a paper on the "Ginseng," a medicinal root highly prized by the Chinese.

— ABUNDANT evidence is forthcoming of the merits of ELLAM'S EARLY CABBAGE, for many gardeners have tried it with the utmost success. One of the best quarters we have seen is in the kitchen garden



"W." writes in reference to the paragraph (page 311) describing the CYCLAMENS AT STUMPERLOWE HALL—"Will 'W. K. W.' please state whether the specimens he referred to bore 500 and 300 fully

at Leigham Court, Streatham, where it has been grown with Early Battersea, and has proved much superior to the older variety. It forms neat compact hearts, which were ready for cutting in the middle of March, proving deliciously tender and good-flavoured. Not one has "bolted," the whole quarter of 200 or 300 being as even as possible. The Battersea samples are good, but much difficulty is now experienced in obtaining this variety true.

— FUMIGATING.—A correspondent ("E. A.") desires to know if there is anything as good as tobacco paper for fumigating, but cheaper. Our readers are quite at liberty to answer this question.

— THE HULL HORTICULTURAL EXHIBITION is to be held on July 2nd, 3rd, and 4th of the present year in the Botanic Gardens of that town. One hundred and five classes are enumerated for plants, fruit, and vegetables, the prizes ranging from £12 to 5s. In all the leading classes the prizes are very liberal; thus for ten stove and greenhouse plants in bloom and six fine-foliage plants, £12, £8, and £4 are offered; for eight varieties of fruit the prizes are £3, £2, and £1, and in others they are proportionately good. The Exhibition held last year gave promise of still further development under the same good management, and it is to be hoped that exhibitors will assist in rendering this Exhibition one of the best in the north of England, as the district is at present practically unrepresented.

— A CORRESPONDENT writes that "in North Warwickshire the FROST does not appear to have been very severe. Last year's Calceolarias are unhurt, and Petunias are not quite dead out of doors."

— "A. Y." considers *IBERIS GIBALTARICA HYBRIDA* "one of the most useful and showy hardy plants that have been introduced of late years, and its rosy-purple colour is very pleasing. It is very hardy, and succeeds well either in the open borders or on the rockwork. If seed is sown now in borders the plants will bloom well by this time next year."

— THE fourth annual Exhibition of the CARDIFF ROSE SOCIETY is announced to be held on Wednesday, July 2nd. The prizes, of which about a hundred are offered, vary in amount from £5 to 5s.

— HARDY FLOWERS IN AMERICA.—A correspondent writing from New Jersey, U.S.A., states that out-of-door plants are now growing most vigorously, and sends the following list of plants in bloom:—*Phlox amœna*, *Aubrietia olympica*, *Saxifraga virginica* pl., *Viola pedata* bicolor, *Houstonia cœrulea*, *H. rotundifolia*, *H. serpyllifolia*, *Galanthus Elwesii*, *G. Imperati*, *G. plicatus*, *Scilla siberica*, *S. bifolia*, *S. bifolia alba*, *Iris reticulata*, *I. persica*, *I. pavonia* (indoors), *Leontica altaica*, *Chionodoxa Lucilæ*, *Leucojum vernum*, *Thalictrum anemonioides* and its double var., *Adonis vernalis*, *Colchicum crociflorum*, *Trillium nivale*, *T. pusillum*, *T. sessiliflorum*, *T. grandiflorum*, *Helleborus* in great variety, *Puschkinia scilloides*, *P. sicula*, *Sisyrinchium grandiflorum*, Dog's-Tooth Violets, *Erythronium americanum*, *E. albidum*, *E. grandiflorum* and *E. propullans*, *Pyxidanthera barbatula*, *Corydalis Kolpakowskiana*, *C. Ledebouriana*, *C. cava albiflora*, *Sanguinaria canadensis*, *Anemone ranunculioides*, *A. nemorosa* fl.-pl., *A. bracteata*, *A. caroliniana*, *Tulipa turkestanica*, *Mertensia virginica*, and a host of Daffodils.

— CHOU DE BURGHLEY.—Mr. A. Harding writes:—"Last May with nine or ten other varieties of Broccoli and winter greens, I sowed a packet of the above new vegetable, and when ready four or five hundred plants were placed out in well-manured soil. The rows were 2 feet apart, and the plants 18 inches asunder. It was not till the first week in December that we began to use it, but from that time until the middle of April it was an excellent supplement to the other winter vegetables. When boiled for half an hour it is tender and has an agreeable flavour. The side sprouts also, after the main head has been cut, are better than the majority of spring greens. Like some others, my opinion last autumn was not very much in its favour, but I thought it too soon to either praise or condemn it; but since Christmas we have found it so useful that I intend to sow it again this year."

— WE have received the first part of "CASSELL'S POPULAR GARDENING," a new work, which is to be issued monthly, and to be completed in about twenty-four parts. It is to include a wide range of subjects, fruit, vegetable, and plant culture, designing new gardens, constructing houses, &c., and will no doubt form, when complete, a useful compendium of information relating to horticulture generally. The part

under notice contains chapters upon garden pots, ground operations, florists' flowers, the life history of plants, the kitchen garden, Rose culture, suburban gardening, and other subjects; but it may be noticed that the arrangement does not appear to be the most suitable for a work of this character. These chapters will be continued in subsequent parts, and when bound the reader will have to follow some subjects through a considerable portion of the work, an obvious disadvantage that will necessitate a bulky index. Had the dictionary form been adopted, and one subject concluded before another was commenced, it would have been far preferable.

— FROM the same firm we have also received the first parts of "THE BOOK OF HEALTH" and "CASSELL'S HOUSEHOLD GUIDE," the titles of which sufficiently explain their objects. The latter is an extremely useful work, quite an encyclopædia of information relating to home management.

— PARTS 2 and 3 of "THE ILLUSTRATED DICTIONARY OF GARDENING" (L. Upcott Gill, 170, Strand) continue the subjects from Allium to Apple in the same style as the first part previously mentioned. It is abundantly illustrated, several of the engravings being familiar catalogue cuts.

HELIOTROPES FOR WINTER FLOWERING.

FOR the successful flowering of Heliotropes in winter there should be a night temperature of 55° in order to secure a continuous growth, and if the plants occupy a light position each young shoot will terminate in a truss of flowers, and a long succession will be thus obtained; but if they do not occupy a light position, so that a certain amount of vigour and ripeness may be imparted to the new growth, the shoots will be weak, soft, and consequently flowerless. A shelf near the glass at the end or at the back of the house near the wall (if the house be a lean-to) will be a suitable position. During the summer the plants must have undergone a suitable preparation, therefore when the stock of Heliotropes is propagated for bedding in spring a few dozen of the most vigorous plants should be selected and grown specially for winter flowering.

They should not be allowed to become root-bound in small pots, but be shifted into a larger size before they receive any check, and as soon as all danger from frost is over they should be plunged in a bed of coal ashes up to the rim of the pots in the open air. All shoots must be pinched back to induce a bushy habit. The bed should occupy an open situation, and the plants must stand far enough apart individually to permit of a free circulation of air around them, thus insuring robust short-jointed growths. Such plants when placed on a shelf in a warm house in winter will produce a large number of flowers for cutting from October to February or March. Neat little bushes may be had in 5-inch pots, but the strongest will require a size larger. Plunging the pots in summer will save watering and prevent the hot sun acting so forcibly on the roots at the side of the pots, from which cause plants sometimes lose their leaves. All plants grown for winter flowering are better plunged in the open air in summer than placed on the north side of hedges or walls. It is a mistake to suppose the tops will be injured by bright sunshine if the roots be protected. This applies also to many other plants besides Heliotropes. A few of the most vigorous may if desired be trained as standards with stems 12 inches long. By attention to pinching good plants may be had in one season.

The dark purple-flowered varieties are the best for winter blooming, as the pale-coloured flowers become still paler in brisk heat, but the dark varieties still retain a delightful tint of purple, and are much prized. Heliotrope flowers may also be had in abundance in winter from old plants planted out and trained against a wall in a warm light house; indeed this is the best plan to adopt if the flowers are wanted in quantity. The plants should be pruned well back about the end of August, or a little later or earlier according to the time the flowers are required. The syringe should be used freely to induce a free and vigorous break, but when once the shoots are growing less syringing will be required, as this, when autumn is approaching, only tends to promote weak growth.

After a good break has been secured the size and number of the trusses of flowers will be in proportion to the direct light that reaches the plants, accompanied, as it should be, by a corresponding amount of heat. These are the two prime factors in the production of Heliotrope flowers in winter, and should always bear some relation to each other in forcing.—J. H. WALKER, *Hardwicke House Nottingham*.

TYING DOWN VINE SHOOT.—I wish to supplement the notes by "Vitis" on the above by advising young gardeners when tying down Vine shoots to train them at one angle, and at the final tying-down

place every shoot underneath the wires. This may seem a trivial matter to some, but it gives the Vines a neat appearance. It has another advantage, and that is, if the foliage is likely to touch the glass it may easily be lowered, when, if the shoot were over the wire, it could not be lowered.—A. YOUNG.

ROSE CHESHUNT HYBRID.

THIS is classed with the Tea-scented China Roses, and in my opinion it is one of the most useful we could have for outdoor culture. It comes into bloom about the end of May, and does not cease flowering until November. It has a splendid constitution, grows luxuriantly, and blossoms most profusely. These decided characters enhance its value considerably, as those who buy it, no matter whether they are skilled Rose-growers or not, may depend on it doing well and giving satisfaction in every way. It is not out of place amongst standard and dwarf Hybrid Perpetuals, and its massive handsome carmine blooms more resemble one of the best of these than any small Tea variety. It will soon cover a large space if planted against a wall, and I would recommend it as a Rose capable of doing good service everywhere out of doors. It is one of the best autumn bloomers I am acquainted with, and many fine blooms of it expand in October when the majority of Roses have ceased flowering.—J. MUIR.

THE NAMES OF HARDY PLANTS.

IN reply to the remarks of "Practical" (see page 350) with regard to the specific distinctions of the several plants he enumerates, and which were included by me in the list of garden names for hardy plants, perhaps I may be permitted to quote Mr. Wolley Dod's observations on the same subject with reference to the difficulty of arriving at any satisfactory understanding. As to the specific as distinguished from purely varietal character, he says, "It must be borne in mind that it is not practicable or convenient in horticulture to be limited to the use of botanical specific names," whilst admitting "that for specific types no more convenient standard could be adopted than that of the Kew Herbarium." It was with a view to the convenience of such a standard arrangement that I drew up a list of garden names, placing each under the species to which it should properly be referred, whilst mere varietal distinctions were not taken into consideration, although many of the names enumerated had been given to plants possessing minor characters of more or less value for garden purposes of distinction.

It will be obvious to "Practical" that in such a genus as *Campanula* a large number of the reduced names belong to plants which are unquestionably distinct in a varietal sense. Had my object been an enumeration of all the species and varieties of the different genera treated upon, a large number of these reduced names would have been retained for varieties or garden forms. I am ready to admit that under *C. alliariaefolia* a number of forms more or less distinct are included by botanists, and that *C. lamiifolia* is perhaps a good variety of the above species, although it cannot be said to be specifically distinct.

Cultivated plants often assume characters widely different from what would be met with in wild types in herbaria. Instances of this are of frequent occurrence in garden plants of long standing, and this assumption of what we may call a new character of plants under cultivation may perhaps account for "Practical's" *C. lamiifolia* differing so widely from what he knows as *C. alliariaefolia*. At Kew the difference between the two is so small that the plants are no longer looked upon as even distinct forms.

With regard to the generic name *Schivereckia*, I am at a loss to understand what is meant by "Practical" when he says that "it is left to our judgment" as to whether we shall accept the generic name *Alyssum* or *Schivereckia*. The "Genera Plantarum" places *Schivereckia* under *Alyssum*; and as the views of the authors of this work must be final, so far at least as genera are concerned, I do not see how it can be "left to our judgment" as to which of the two names should be adopted.—SPECIALIST.

VINE TRAINING AND PRUNING AT CASTLE COCH.

I HAVE much pleasure in answering some queries that have been sent to me from a correspondent respecting the treatment of the Vines in the vineyard at Castle Coch.

He asks first, "How many fruiting rods were tied up to stakes, and how many stakes are used, and in what manner are they arranged?" From three to four rods are allowed to grow from each Vine, and they are simply tied to the stake in the same "manner" that Raspberry canes are tied when trained to stakes.

He next asks, "How many bunches are left on each lateral, and how many buds are left above the bunch?" One bunch and sometimes two are left, according to the strength of the lateral, and the laterals are stopped at from six to seven buds or leaves above the fruit, so as to allow the canes to reach the top of the stake at the first stopping.

Then he asks, "Are the fruiting rods cut down close to the ground, so that the new rods spring from the root; or are they cut down to the last eye?" When the Vines are pruned they are cut down as close to the ground as possible, never leaving more than from two to three buds on the last year's cane; these are again reduced to one by disbudding. By this system of pruning the Vines naturally in course of time form stools like Osiers or Willows.

Lastly, he asks, "What is the reason Vines in vineyards are pruned on the long-rod system?" I should say the reason is because the cultivators

find that system to answer best, in the same way that the cultivators of the Vine around Paris find it answers best to cut the Vines down as close to the ground as possible.—A. PETTIGREW, *Castle Gardens, Cardiff*.

ORCHIDS AT WOOLTON WOOD.

THE most extensive collection of Orchids in the neighbourhood of Liverpool is that possessed by H. Gaskell, Esq. This collection is a very large and valuable one, and is still being increased by the addition of large numbers of species and varieties, and half a dozen houses are devoted to their growth. It is scarcely to be wondered that the love for Orchids is becoming so rapidly established, for a visit in the spring time to Woolton Wood could not fail to impress the most casual observer with the wonderful beauty and richness of the flowers of these plants. It is not my intention at the present time to enumerate the many fine plants of different species and varieties that occupy the houses, but to note the most conspicuous amongst those in bloom.

The *Cattleyas* first command attention, for some thirty or forty different varieties of that useful *C. Trianae* were in full beauty, and scarcely any two exactly alike, varying from the very lightest shades to those with dark lips of deep crimson or lake colour. *C. T. Backhousiana* stood out prominent amongst the others with its large rich-coloured lip. One of the Popayan varieties collected by the late Mr. Chesterton on his last journey, and flowering for the first time, rivals, if it does not surpass, that fine variety. The lip is of large size and well opened, and in colour rich crimson lake. The petals are large, beautifully feathered and veined down the centre with the same colour as that of the lip. This is the finest dark form of *C. Trianae* I have yet seen. Another form has pure white sepals and petals of great substance fully 6 inches in diameter, while the lip is over 2 inches across and of the darkest crimson, which is fringed with white nearly a quarter of an inch in depth. This variety possesses a peculiar fragrance, and will undoubtedly at no distant date receive a distinct name. Many light forms were noticeable, but these are not regarded with so much favour by Orchid enthusiasts as the darker ones, yet they have a delicacy and beauty that cannot fail to command attention. A noble plant of *C. Percivaliana* with twenty-four flowers was worthy of note; its richly marked yet peculiar-coloured throat renders it distinct and one of the most useful of *Cattleyas*, flowering as it does freely before the varieties of *C. Trianae*. A truly grand plant of *C. dolosa Walkeriana* was at home upon a block and covered with its rich purple blooms. This dwarf-growing species is a gem, and where those possessing rich fragrance are desired this should be grown. *Cymbidium Lowianum atropurpureum* was just commencing to unfold twenty-one of its flowers on a large spike. The deliciously fragrant *C. eburneum* was also displaying its attractive ivory white flowers.

The wealth of *Dendrobiums* suspended from the roof in the *Cattleya* house at different heights added much to the gay appearance of the house. The first plant to be mentioned was that old inhabitant of our gardens, *D. nobile*; a large basketful covered with bloom was suspended in front of the door, and the effect was all that could be desired. This is a grand Orchid, and when well grown and flowered is still unsurpassed. To the right hung a fine dark form of *D. nobile*, much finer than the variety known as *D. n. pendulum*, having broader and more darkly coloured sepals and petals; while the lip, which is a feature in *D. pendulum*, are in these two forms very similar. Of *D. Ainsworthii roseum* two or three plants were in full bloom, and the same may be said of its delicate yet lovely white form. The sepals and petals of the latter were of the purest colour, while those of the former were particularly well shaded. Those who have seen both these forms and have had opportunities of comparing them with the variety known as *D. Leachianum* would not long dispute that the latter is distinct from both. A number of the useful and attractive *Dendrobium Jamesianum* were standing upon the stage in flower in association with the *Cattleyas*. *D. Pierardii latifolium* was conspicuous with its pendant growths 4 feet in length, and well flowered for fully 3 feet of that length. *D. luteolum* with its cream-coloured flowers, and *D. moniliforme* may also be mentioned as being in good condition. Of *D. crassinode*, variety *Barberianum*, several plants suspended in the house with stout profusely flowered pseudo-bulbs were very attractive. The white form album was equally as well bloomed as the type, and the specimen noted had several flowering pseudo-bulbs. *D. Wardianum* with growths varying in length from 18 inches to over 3 feet in full bloom, and others ready to expand, would, when all out, be a sight worth seeing. But the white variety of this delicate yet gorgeous *Dendrobium* had a peculiar charm, for I had never seen it in flower before. Mr. Gaskell's specimen is a grand one, having several pseudo-bulbs covered with flowers. In growth it exactly resembles the type, not the giant form that has been imported from Burmah and now so plentiful in this neighbourhood. There is a wonderful similarity between the above variety and that of *D. crassinode album*, the yellow of the lip being perhaps a little brighter colour in the former than the last named, while the former has two small dark spots in the throat. Both are charming varieties. It may here be mentioned for the good of those commencing the cultivation of *Dendrobiums* that Mr. Davies, Mr. Gaskell's successful grower, does not give to these plants much material for their roots. *D. crassinode* may be given as an example. Two small rafts are secured together, and between them the smallest portion of sphagnum moss, the plants being made secure at one end of the rafts. No plants could be doing better, and it is clearly evident that many give these plants too much moss and peat to root in.

The warmest house contained many fine plants of *Aerides*, *Vandas*,

Saccolabiums, and others, but I shall pass these to notice the Phalænopsis. These are arranged at the north end of the house, the wall being covered with Ferns, Fittonias, and other similar plants. Many of the plants are standing upon the stage, but elevated about a foot above the rim of large pots and blocks of wood, while the remainder are in baskets suspended at different levels. Many of the plants were in bloom, and the magnificence of the display should be seen to be fully realised. A variety with the growth of *P. amabilis* was particularly conspicuous, having in the flower the yellow of *P. grandiflora*. *P. amabilis* and *P. Schilleriana* were very fine, while two plants in full beauty of *P. Stuartiana* were really grand. *P. leucorrhoda* is, perhaps, the finest of all Phalænopsids, having flowers 3 inches or more across, which resemble in size and shape those of its parent, *P. amabilis*; they possess the beautiful colouring of its other parent, *P. Schilleriana*. These plants do not like being moved about, and to show their peculiarity in this respect it may be mentioned that those noted above were removed from an old house to the new one which they now occupy, but they did not take kindly to their new quarters; but by care and judicious treatment Mr. Davies has during the past year restored them to their former health and vigour, and they are now in the best possible condition.

Cypripediums are in good condition and well represented. A large plant of *C. barbatum*, over 4 feet in diameter, although not in flower, cannot be passed without notice. *C. caudatum* has eight or nine spikes visible, and when its peculiar long petals are developed this plant will be interesting. A large flower of *C. Lawrencianum giganteum* was just past its best, having been crossed with that distinct and beautiful variety, *C. Spicerianum*. A good plant of *C. barbatum biflorum* with its two flowers on one stem, as its name implies, was well flowered. *Cypripediums* *Argus*, *Hookerii*, *lævigatum*, *hirsutissimum*, and *villosum*, a large plant with many flowers, were also worthy of mention. In the cool house there was a good opportunity of comparing the varieties of *C. insigne*, *C. i. aureum* being good, but a form named *C. Chantinii* was very much superior, being both larger and finer than the flowers of *Maulei*, the plants of both being equally strong. In the warm house was a very fine plant of *Dendrochilum glumaceum* with twenty-five of its hangingspikes, which scented the whole house. This Orchid is worth growing more largely in gardens, as it is admirably adapted for cultivation in baskets, and has a very beautiful appearance when in flower suspended from the roof. *Leptotes bicolor* was also pretty.

In the houses devoted to cool Orchids quantities of *Cælogyne cristata*, large pans 3 feet or more in diameter, which had been masses of flower, were just over. The *Trentham* variety was still at its best, and is valuable because it flowers later. *C. Lemoniana* was in full beauty, and flowers much later than the ordinary variety of *C. cristata*. The plant of *C. Lemoniana* is over 3 feet over, and has the peculiar habit of flowering freely from the top of the pseudo-bulbs in autumn, and from their base the same as *C. cristata* at this season of the year. This is the character of the plant under Mr. Davies' charge, and it would be interesting to know if this is natural to this variety. Many plants of *Lycaste Skinnerii* of various shades were in full flower, while very fine plants of *Lælia anceps* were past their best; these must have been very fine. The *Odontoglossum* house was very gay with numbers of *O. Alexandræ*, *O. Pescatorei*, plants of *O. Hallii* with seven or eight large spikes, and many others. Several plants of *O. odoratum* were in flower, but one struck me as a remarkably fine distinct form, having a pure white lip with a purple spot upon it. *O. Rossii majus* and *O. Cervantesii* were attractive, suspended from the roof in shallow pans in association with the bright scarlet flowers of *Sophronis grandiflora*. The last is a great favourite, and Mr. Gaskell intends to have sufficient to fringe the whole of the house devoted to *Odontoglossums*; and what is easier of cultivation or more beautiful at this season of the year?

Although many new and rare species and varieties are to be seen at Woolton Wood, yet room is found for good useful old kinds. *Phajus grandifolius* is one of these, and I noted a large plant with over two dozen spikes, and it would be difficult to select an Orchid when in flower that is more noble or commanding. *Calanthes* a short time ago were a great feature of attraction, one large house being filled with them while in bloom. I need scarcely add that where these plants are grown in large numbers such a sight once seen seldom fades from the memory. These plants are held in such high estimation that it is proposed to construct a house for them. The plants of *C. veratrifolia* which are grown in the stove are wonderful examples of cultivation, and a competent authority considers them the finest plants in Europe. They are growing in 10-inch and 12-inch pots, and are the picture of health; in fact they resemble *Phajus grandifolius* in size and strength more than *Calanthe veratrifolia*. These plants are well elevated above the rim of the pots except one plant, which is not in good condition, but has been potted differently on someone's recommendation. These *Calanthes* are potted in about equal parts of fibrous loam and peat; with a very liberal quantity of sandstone intermixed, and a few quarter-inch bones with the meal left amongst them as crushed. Mr. Davies feeds these plants liberally, and can do so with safety when small pieces of sandstone are freely employed in the compost.

There is a house full of *Masdevallias* in the best of condition just commencing to throw up their showy flowers.—W. BARDNEY.

NARCISSUS "JAMES DICKSON."

In reply to your correspondent "Narcissophile" under the above heading in your valuable paper (May 1st), we did not send the flowers to the Floral Committee of the Royal Horticultural Society until after we had

purchased 1000 of the bulbs from Mr. Pickstone. The name as applied had previously been given to it by Mr. Burbidge at the Daffodil Conference on April 1st, and, curiously coincident, the same name was given by the Rev. C. Wolley Dod. We have purchased the entire stock of flowering bulbs of this grand variety from Mr. Pickstone, and it was by his special desire that we wrote to the Floral Committee to change the name to "Sir Watkin," which they declined to do. Our intention is to send it out under the name of "Sir Watkin" early in the approaching autumn.—JAMES DICKSON & SONS, *Newton Nurseries, Chester*.

NATIONAL AURICULA SOCIETY.

NORTHERN SECTION.

THIS Exhibition, which was held in the Manchester Town Hall on Tuesday the 29th ult., was, in the opinion of many, not quite equal to those of former years, last year in particular. Undoubtedly the chief reason is the backward condition of many collections. Several large growers were almost unrepresented, notably the Rev. F. D. Horner, Wm. Bolton and Richard Gorton, Esqs., and some others were not in such strong force as on some other previous occasions; nevertheless a good display was made, and it is worth while going a long way to witness the intense enthusiasm of the numerous growers, be they in humble or affluent circumstances. If a suggestion may be made here, it would be that the Committee should encourage the exhibition of larger collections, say fifty varieties, also to secure a larger number of Alpine exhibits, as that class is evidently very rapidly gaining the popular favour. Again, a much better and more distinct method of labelling should be insisted upon than exists at the present time. Growers know their plants as soon as they see them, but the public do not, and the greatest difficulty is experienced in getting at the proper names of the plants when pasted on the pots, and frequently most indistinctly written. These are matters well worthy the consideration of the Committee, and undoubtedly their efforts to develop improvements will be cordially appreciated by the public and flower-loving section of the Lancashire community. A very large number of people visited the Exhibition, and at times the building was uncomfortably full. The Auriculas were fittingly supplemented by a very attractive display of stove and greenhouse plants.

SHOW AURICULAS.—Six dissimilar varieties.—In this class there were seven collections staged, all of which were good. First Mr. H. Wilson, Halifax, with grand plants of *Prince of Greens* (Trail), nine pips: Col. Taylor (Leigh), Acme (Read), Lancashire Hero (Lancashire), John Simonite (Walker), and Mrs. Douglas (Simonite), all of which showed evidence of the best culture, the plant of John Simonite was especially praiseworthy. Mr. E. Pohlman, Halifax, followed with a very even collection as follows:—*Prince of Greens* (Trail), *Trail's Beauty*, *Brilliant* (seedling), Acme (Read), Col. Taylor (Leigh), and Alexander Meiklejohn (Kaye). The finest plants were *Prince of Greens* with eight charming pips, and *Trail's Beauty* with nine very large pips; the flowers of Acme were also good. Third Wm. Brockbank, Esq., Didsbury, whose best plants were *George Lightbody* (Headley) and Lancashire Hero (Lancashire), the latter being especially good. Fourth Mr. Ben. Simonite, Sheffield, whose collection included *Merlina* (Simonite), *Heather Bell* (Simonite), and a new seedling. Fifth, Wm. Bolton, Esq., Warrington; sixth, Mr. E. Shaw; seventh, Miss Stewart, York.

Four dissimilar varieties.—The premier position was again taken by Mr. H. Wilson with very neat plants, comprising *Garibaldi* (Pohlman), with seven first-rate pips; Col. Taylor (Leigh), Acme (Read), with six very even pips; and *George Lightbody* (Headley). A close second was gained by Mr. Pohlman with Acme (Read), *George Lightbody* (Headley), *Ellen Lancaster* (Pohlman), and Col. Taylor (Leigh); the plant of *Ellen Lancaster* was especially noteworthy. Mr. Wm. Taylor, florist, Middleton, was third; Wm. Brockbank, Esq., fourth; Wm. Bolton, Esq., Warrington, fifth; Arthur Potts, Esq., Hoole, Chester, sixth, this collection containing a good plant of *Dr. Horner* (Simonite); and Mr. E. Shaw, seventh. There were nine collections staged in this class, some of them running very close in merit.

Two dissimilar varieties.—As usual this was a very full class—sixteen pairs were staged, the honoured ones selected in the following order. First, Mr. E. Pohlman with *Read's Acme* and *George Lightbody* (Headley), the former with seven very excellent pips, and the latter with six extra-sized pips. Second, Mr. John Beswick, Middleton, with *George Lightbody* (Headley) and Chas. J. Perry (Turner), the latter with ten large pips. Third, Mr. Wm. Taylor; fourth, S. Barlow, Esq., Stakehill, Manchester; fifth, Mr. R. Lord, Todmorden; sixth, Mr. E. Shaw; seventh, Mr. H. Wilson. This formed a most interesting class.

Pair, for maiden growers.—Arthur Potts, Esq., took the lead in this class with *Booth's Freedom* and *Lancashire Hero* (Lancashire), the former with six fine pips and in excellent condition, and the latter with six pips. Mr. J. Brodie, Rochdale, was second. These were the only two exhibitors in this class.

SINGLE PLANTS.—*Green-edged*.—In this class, as well as every other for single specimens, the competition was very keen. A large number of plants being staged, great difficulty was experienced in selecting the best for the awards. The premier was a plant of *Lancashire Hero* (Lancashire), the owner's name being not given on the card; after this the first prize was taken by Mr. R. Lord for a seedling of very promising character. Mr. E. Pohlman was second with *Prince of Greens* (Trail), and a grand plant it was, with ten fine pips. The following awards were made respectively—third, Mr. Jno. Beswick; fourth, fifth, and eighth, Mr. Ben. Simonite; sixth, Wm. Brockbank, Esq.; seventh, Mr. E. Pohlman. There were thirty entries in this class.

Grey-edged.—The premier was another grand plant of *George Lightbody* (Headley) from Mr. H. Wilson, carrying seven good pips; after which the first prize was given to a good specimen of *Alexander Meiklejohn* (Kaye), the owner's name not transpiring. Mr. E. Pohlman was second with *Lancashire Hero* (Lancashire); third, Wm. Brockbank, Esq.; fourth, Mr. B. Simonite; fifth, Mr. J. Simonite; sixth and eighth, S. Barlow, Esq.; seventh

R. Heys, Esq., Rochdale. This was also a very keenly contested class; upwards of forty specimens were staged.

White-edged.—The premier was granted to Mr. H. Wilson for a fine plant of Acme (Read), bearing nine very large and even pips. First, Mr. R. Lord, with the same variety; second, fifth, and seventh, Mr. H. Wilson; third, fourth, and sixth, Mr. Ben. Simonite; eighth, Mr. R. Lord. The plant of Trail's Beauty, gaining the third prize, is especially worthy of mention, carrying eight very fine pips. There were upwards of thirty plants staged in this class.

Sels.—In this class there was very keen competition, as there were over fifty plants staged. Premier, Wm. Brockbank, Esq., with a seedling named Lord Rosebery, a ruby body colour, with a good tube. Mr. Jno. Beswick took the first prize with an excellent plant of Lord of Lorne (Campbell); second and fifth, Mr. E. Pohlman, with Brunette (Pohlman) and Ellen Lancaster (Pohlman); third and sixth, S. Barlow, Esq., with Ringleader (Barlow) and a seedling; fourth, Wm. Bolton, Esq.

ALPINE AURICULAS.—Four dissimilar varieties, shaded.—First, S. Barlow, Esq., with very handsome specimens of President (Turner), Mrs. Llewelyn (Turner), Unique (Turner), and Mrs. Dodwell (Turner). Mr. Jno. Beswick was a good second, all his plants being very fine, especially Diadem (Gorton), with sixteen pips; Dazzle (Turner) was also very fine. Third, Mr. E. Shaw; fourth, Mr. R. Heys; fifth, Wm. Brockbank, Esq.; sixth, Mr. Prescott.

Single plant, yellow centre.—Premier, Mr. E. Shaw, with Diadem (Gorton), carrying an enormous truss of bright flowers. Mr. R. Heys took the first prize with a good seedling; second, Wm. Brockbank, Esq., with Mariner (Turner), the same grower taking third; fourth and fifth, Mr. J. Geggie and Mr. E. Pohlman respectively. This was a very closely contested class, there being not less than thirty plants staged.

Single plant, white ground.—There were about twenty entries, but many of the plants were weak, and scarcely white grounds. Premier, Mr. E. Pohlman with a very handsome seedling, the same grower taking the first prize also with another seedling of great merit; second and third, Mr. R. Heys and Mr. Partington, Middleton, in the order named.

POLYANTHUSES.—Three dissimilar, black ground.—First, Wm. Brockbank, Esq., with Exile, bearing ten perfect pips, and rarely has it been shown so good; Beauty of England and Cheshire Favourite, the former with six and the latter with seven pips. The growth of these plants was remarkable, the strongest evidence that Polyanthus are happy at Didsbury. Second, Mr. John Beswick, with excellent plants, comprising Exile, Blackbird, and Lord Beaconsfield; third, S. Barlow, Esq.

Three dissimilar, red grounds.—In these Mr. John Beswick took the lead, although the second collection was very close in merit. His plants were Sidney Smith, Lancer, and George IV., the latter being the strongest plant; Lancer was very fine. Wm. Brockbank, Esq., was second with President, Prince Regent, and Lord Derby; the latter is a very fine variety. Third, Mr. R. Heys, with George IV. (again good), Formosa, and Prince Regent; fourth, S. Barlow, Esq.

Single plant, red ground.—There was not less than twelve entries in this class. Premier, Mr. R. Heys, with George IV.—a splendid plant, with seven large and perfectly formed flowers. First and fifth, Mr. Jno. Beswick, with Lancer and Minnie; the former again very fine. Second, S. Barlow, Esq., with a meritorious seedling; third (owner's name not given), a good plant of George IV.; fourth and sixth, Wm. Brockbank, Esq., with Prince Regent and Lord Derby.

Twelve dissimilar, fancy varieties.—Wm. Brockbank, Esq., was the only exhibitor in this class. The collection staged was very attractive, but a good deal of the hybrid Primrose breed existed in the flowers; indeed, some of them more Primrose than Polyanthus in our opinion; however, they well merited the award.

FANCY AURICULAS.—There was a class provided for twelve dissimilar varieties of these. S. Barlow, Esq., was first; W. Bolton, Esq., of Warrington, second with very pretty plants, showing a marked deviation from the typical florists' flowers.

PRIMROSES.—Twelve dissimilar.—Mr. Brockbank was the only exhibitor in this class, his collection including double and single varieties of ordinary merit.

MISCELLANEOUS EXHIBITS.—These as usual materially assisted to make the Show a success, although none of the collections staged were prompted by the prospect of money prizes. A group of Polyanthus Cheshire Favourite from Mr. Thomas Walker, nurseryman, Nearsden Road, Sale, showed how well that variety can be grown in the neighbourhood of Manchester; they were very healthy and vigorous. Varieties of Primula Sieboldi from Mr. G. Geggie of Bury, Lancashire, were also very attractive, and all were good. Mr. Geggie is making a speciality of these lovely flowers, and the issue is certain, if one may judge from the charming display here noted. Messrs. James Dickson & Son of Chester staged two stands of Auriculas, one of Show and the other Alpine varieties. The former were especially attractive, and conspicuous amongst them were plants of Lord of Lorne (Campbell) carrying three large trusses; C. J. Perry (Turner), one truss with twelve pips; Frank Simonite (Simonite), John Simonite (Walker), Acme (Read), Charles E. Brown (Headly), George Lightbody (Headly), Glory (Taylor), &c. The Alpines were also showy. The same firm also exhibited two stands of the now popular Japanese Maples; a first-class commendation was awarded for the exhibit. R. P. Gill, Esq., of Ashton-on-Mersey, also staged a batch of Japanese Maples, and a new seedling Atbyrium, raised by the gardener, Mr. Wm. Plant, which received a first-class certificate. The fronds are about 9 inches long, gracefully arching, with very small lateral pinnæ, the apex terminated with a broad tasselled head; it is a handsome sport.

Messrs. Fisher, Son, & Sibray of Handsworth staged a magnificent collection of stove and greenhouse plants. First-class certificates were awarded for Azalea Miss Beust and Vanda tricolor planilabris, and a certificate of commendation for a magnificent plant of Asparagus plumosus. Numerous Orchids and greenhouse Rhododendrons were conspicuous in this collection. In the former were Vanda tricolor amabilis, Trichopilia suavis—these were especially fine, Odontoglossums and Dendrobies. In the latter the brilliant scarlet Duchess of Connaught was conspicuous, the pink-flowered R. Taylori, the pure white Lady Alice Fitzwilliam, &c., the whole constituting a most effective and valuable group. A special feature of the Exhibition, too, was the grand mass of cut and pot Roses occupying the whole front of the

orchestra, exhibited by Mr. William Rumsey, Waltham Cross, for rarely have the Lancashire folk had such a feast of Roses so early in the season. The plants in pots were admirably grown, although not large, carrying excellent blooms, while the cut blooms were equally meritorious.

TEA ROSE NIPHETOS.

ALTHOUGH much has been said for and against this variety, I may be allowed to describe the culture from which we have derived the most success. It was planted three years since on the east side of a house devoted to Camellias with the roots outside, then only a plant with three small shoots. It made rapid growth, and being anxious for it to cover its allotted space we allowed it to grow unchecked, with the result that blooms were procured; although they were useful for house decoration were not in the strict sense of the word good blooms. In August, 1883, we determined to try a different process, which proved most satisfactory. It was pruned similarly to Vines, with the result that several shoots appeared on each spur, carrying blooms that were quite delightful. The syringe was freely used until the blooms began to expand, when its use was dispensed with, and aided by a temperature of 55° by fire heat kept the house free from damp, which is one of the greatest enemies this Rose has to contend with. I may add that after the first crop of blooms was cut it commenced growing and is carrying at the present time blooms well worthy its reputation. We use liberal dressings of horse droppings, which are renewed as they become exhausted. Care is taken to protect the stem outside during cold weather.—W. MAYBURY, *The Rookery Gardens, Dorking.*

[A finer example of this beautiful Rose we have never seen than the spray that was sent to us by Mr. Maybury, and which is represented in a reduced form in the annexed engraving.]

ORCHIDS AT WESTBROOK, SHEFFIELD.

I WAS greatly surprised at the tone of the letter of "F. F." on the above subject on page 344. I certainly had not any attention of writing "disparagingly" of "F. F." in my notes under the above heading of April 3rd, nor can I yet see that anything contained in those notes will bear that construction, as neither his name nor his work was mentioned. I cannot, however, allow such a curious letter to pass unnoticed.

I at once admit my error as to the date of the year when the sale of Orchids and subsequent death of the proprietor took place, and which he says was 1880, not 1881 as given by me. I can only repeat the statement in the editorial footnote, that this was an unintentional clerical error on my part.

He next says, "I had charge of them over three years." How is such a statement reconcilable with the fact that he entered upon his duties as gardener at Westbrook in September, 1880, and resigned those duties in February, 1883? Referring next to his correction of my statement as to the size of the two Odontoglossum houses. I did not give my figures as being the exact measurement of the houses, but only an approximation, and the figures given were qualified by the word "about." It does appear, however, that those figures were not far wrong, and the difference in size of the two houses is only some 3 feet in their length.

As to his statement concerning the Calanthes grown by him in 1882, I had the pleasure of seeing them when at their best, and gladly bear testimony to the fact that they were a splendid example of successful cultivation, and were, indeed, the finest of any I had ever seen, but at the same time I did not, I believe, see any spike 6 feet 6 inches long, though I well recollect "F. F." telling me he had them 5 feet 6 inches long. As to the 3 feet 2 inches length of bloom open at one time on one spike as stated by him, I did not see it. I at the same time saw the collection of Odontoglossums, and will only say that the condition of the plants was certainly far removed from what it now is.

Your correspondent says he will now allow readers of the Journal to judge for themselves. In this I concur, and I do not therefore intend to notice any further communication upon the subject.—W. K. W.

[It does not appear to us that any further discussion would be either profitable or interesting.—ED.]

NOMENCLATURE OF NARCISSI.

AT the Narcissus Congress of the Royal Horticultural Society, held on April 1st, 1884, the following resolution proposed by H. J. Elwes, Esq., and seconded by J. G. Baker, Esq., was adopted, and a Committee was appointed to revise the names now in use, in order to adapt them as far as possible thereto:—

Resolved—"That, in the opinion of this Conference, uniformity of nomenclature is most desirable, and that garden varieties of Narcissi, whether known hybrids or natural seedlings, should be named or numbered in the manner adopted by botanists."

The revising Committee met on the morning of the following day, when the names of the flowers then present underwent



Fig. 87.—ROSE NIPHETOS.

revision and correction in the sense of the resolution. Mr. Elwes presided. Mr. J. G. Baker kindly undertook to frame a table showing the botanical relationship between the several plants, while to Mr. T. Moore and Mr. P. Barr was deputed the further task of filling in the names of other garden forms and monstrosities. The list here printed is the result of their joint labours, the first portion showing Mr. Baker's grouping of the botanical forms, and the second portion the garden varieties arranged according to their botanical affinities.

THE CONGRESS CATALOGUE OF NARCISSI.

SERIES I.—GENUINE SPECIES AND THEIR VARIETIES.

[NOTE.—The names printed (large type) in the first left hand column represent the sub-genera, those in the second (italics) indicate the admitted species, those beneath them in ordinary type are sub-species, and the right hand column gives the varieties as understood botanically. The garden forms and monstrosities follow these.]

- | | | |
|---|---------------------|--|
| I. CORBULARIA— | | MAGNICORONATI. |
| 1. <i>Bulbocodium</i> | | |
| " | conspicuus | |
| " | citrinus | |
| nivalis | | |
| Graelsii | | |
| monophyllus | | |
| II. AJAX— | | |
| 2. <i>Pseudo-Narcissus</i> | | |
| Pseudo-Narcissus proper (the wild Daffodil of England). | | |
| " | abscissus (muticus) | |
| " | cambricus | |
| " | lobularis | |
| " | Telamonius [P.B.] | connecting links between |
| " | princeps [P.B.] | Pseudo-Narcissus and major. |
| major | | |
| " | maximus | |
| " | obvallaris [P.B.] | |
| minor | | |
| " | pumilus | |
| " | nanus | |
| " | minimus | |
| bicolor | | |
| " | lorifolius | a connecting link between Pseudo-Narcissus and bicolor |
| moschatus | | |
| " | albicans [P.B.] | |
| " | cernuus | |
| " | tortuosus | |
| III. GANYMEDES— | | MEDIICORONATI. |
| 3. <i>calathinus</i> | | |
| 4. <i>triandrus</i> | | |
| " | pulchellus | |
| " | cernuus | |
| " | concolor | |
| " | nutans | |
| IV. QUELTIA— | | |
| 5. <i>incomparabilis</i> | | |
| aurantius | | |
| albidus | | |
| 6. <i>odorus</i> (calathinus, Hort.) | | |
| " | lætus | |
| 7. <i>juncifolius</i> | | |
| apodanthus | | |
| rupicolus | | |
| V. HERMIONE— | | PARVICORONATI. |
| 8. <i>Jonquilla</i> | | |
| 9. <i>Tazetta</i> | | |
| dubius | | |
| intermedius | | |
| " | bifrons | |
| " | primulinus | |
| " | bicrenatus | |
| " | radiatus | |
| pachybulbus | | |
| orientalis | | |
| canariensis | | |
| mediterraneus | | |
| " | ganymedoides | |
| polyanthos | | |
| ochroleucus | | |
| papyraceus (unicolor, niveus) | | |
| Luna | | |
| " | Barlæ | |
| Panizzianus | | |
| italicus | | |
| chrysanthus | | |
| " | Bertolonii | |
| aureus | | |
| 10. <i>viridiflorus</i> | | |
| 11. <i>serotinus</i> | | |
| elegans | | |
| obsoletus | | |

VI. EUNARCISSUS—

12. *poeticus*
- " stellaris
- " recurvus
- " poetarum
- radiiflorus (angustifolius, Ait.)
- verbanensis

VII. AURELIA—

13. *Broussonetii*
- [Five of the preceding thirteen species are, practically speaking, out of court as garden plants.]

SERIES II.—HYBRIDS, KNOWN OR PRESUMED.

[NOTE.—Of these the first column of names represents what are regarded as primary types; those in the second are regarded as secondary types.]

MEDIICORONATI.

1. *Humei* (Hume's hybrid): incomparabilis × Pseudo-Narcissus.
albidus
concolor
2. *Backhousei* (Backhouse's hybrid)
3. *Macleai* (Macleay's hybrid): Pseudo-Narcissus × Tazetta
Nelsoni
Bernardi [P.B.]
Sabini
tridymus
4. *Leedsii* (Leed's hybrid): montanus × Pseudo-Narcissus
Vincenti
5. *Barrii* (Barr's hybrid): poeticus × Pseudo-Narcissus
6. *poculiformis* = montanus (Salisbury's hybrid): (?) papyraceus × moschatus.
galanthifolius
Dr. Masters

PARVICORONATI.

7. *gracilis*: juncifolius × Tazetta
 8. *Burbidgei* (Burbidge's hybrid): super-poeticus × Pseudo-Narcissus
 9. *biflorus*: (?) poeticus × Tazetta
albus.
- [Nos. 3, 6, 7, 9 are old, the others recent].—J. G. B.

GARDEN VARIETIES OF SPECIES (SERIES I).

2. *Pseudo-Narcissus*—
albus, luteus, pallidus, Nelson, scoticus, serratus
sub-group: F. D. C. Godman, Nell Barry, Stansfield, variiformis, Wolley Dod
- 2a. nobilis of Redoute
- 2b. lobularis—
ampliorona
- 2c. major—
Beaconsfield, Backhouse's Queen, Captain Nelson, Corporal Trim, Cleopatra, Chinese Gordon, Eliza Turck, Evening Star, Greenback, Gertrude Jekyll, Gladstone, Golden Prince, Her Majesty, Hudibras, Havelock, John Nelson, J. G. Baker (volutus), John Vincent, John Bright, Joseph Chamberlain, Khedive, Little Princess, Lady Doneraile, Lord Mayor, Mr. Engelheart, Mrs. H. J. Elwes, Mrs. Gladstone, Mrs. Shirley Hibberd, Mrs. Nelson, maximus, M. J. Berkeley, Marie Louise, major luteus, major superbus, Morning Star (stellatus), Peri, propinquus, Prince George, President Arthur, President Lincoln, spurius, spurius coronatus, Sir Charles Dilke, Sir W. Harcourt, St. Bridgid, Shirley Hibberd, Sharman Crawford, Seraph, Thomas Moore (Mooreanus), Thomas Spanswick, Townshend Boscawen, Tottenham Yellow
- 2d. bicolor—
Alfred Parsons, Archbishop Haynault, breviflorus (bicolor, Bot. Mag.) Dean Herbert (primulinus), Duke of Edinburgh, Duchess of Edinburgh, Empress, George H. Barr, grandis (maximus), Horsfieldii, Harrison Weir, James Walker (albidus), J. B. M. Camm, Jeannette, Mrs. J. B. M. Camm, Mrs. Harrison Weir, Michael Foster (sulphurescens), Mrs. M. Foster, Murrell Dobell, President Garfield, Prince of Wales, Peabody, Sir R. Peel, T. S. Dorrien-Smith, William Robinson
- 2e. lorifolius—
A. F. Barron, anceps, Emperor, Edith Barber, J. W. H. Barr, Lady Dorothy, Mrs. W. Goldring, Lord Derby, P. R. Barr, rugilobus
- 2f. moschatus—
cernuus pulcher, Mr. Cowan (Cowani), Cecilia de Graaf, Dr. Hogg, Duchess of Connaught, Exquisite, F. W. Burbidge, G. F. Loder, Lady Grosvenor, Mr. Milner (Milner), Mrs. F. W. Burbidge, Marchioness of Lorne, pallidus præcox, Rebecca Syme, Sir Stafford Northcote, Sarah Tisdale, William Goldring (longipetalus)
5. *incomparabilis*—
concolor—
Autocrat (expansus), Bella (minor), Blucher, Chang, Edward Hart, Eclipse (grandiflorus), Hector, Jenny Lind, Provost, Sunray (stellatus), Sycorax, Wellington.
- Leedsii—
C. J. Backhouse, Figaro (expansus), Fairy (marginatus minor), Gloria Mundi, Glow (marginatus), Mrs. A. F. Barron, Sunlight (stellatus), Titan (grandiflorus).
- sulphureus—
Astræa (aureo-tinctus), Beauty, C. H. Dee, Darling (marginatus), Gil Blas (stellatus), Hogarth, John Bull (expansus), Johnny Sands, Magog (grandiflorus), J. F. Meston, J. T. D. Llewelyn, King of the Netherlands, Longshanks, Mrs. Meston, Nabob, Queen Sophia, Queen Mab (marginatus minor), Sir Christopher Wren.
- albidus—
Annie Baden, Adonis, Albert Victor, Bianca (expansus), Bride, Cupid (stellatus), Cynosure (albidus Leedsii), Fitzjames, Gog (grandiflorus), Jane Kolle, Lorenzo, Vesta.

pallidus—

Princess Mary of Cambridge, Prince Teck, semipartitus.

albus—

Consul Crawford, Charles Hooper, Claribel, Dove, Dr. Gorman, Duke of Buccleuch, Fair Helen (elongatus), formosus, G. F. Wilson, Harpur-Crewe, H. C. Smith, James Bateman, Marmion (aurantius), Montrose, Mrs. C. J. Backhouse, Mrs. G. F. Wilson, Poiteau, Queen Bess (albus magnificus), Roland (expansus), Rosa Bonheur, Stella, Surprise, William Bull.

giganteus—

James Dickson (Sir Watkin)

6. odorus—

Campernelli, trilobus, interjectus, rugulosus, minor (pseudo-juncifolius), heminalis.

8. Jonquilla—

major (large Jonquil), medius (lesser Jonquil), minor (least Jonquil).

9. Tazetta—

White with yellow cup: Bazelman major, Florence Nightingale, General Wyndham, gloriosus, Grand Monarque, Grand Primo Citronnier, Grootvoorst, Her Majesty, orientalis, Queen of the Netherlands, Sir Walter Scott, Staten General.

Yellow with yellow cup: Apollo, Bathurst, Jaune Supreme, Lord Canning, Sir Isaac Newton, Soleil d'Or, Sulphurine.

White with white or whitish cup: lacticolor, Louis le Grand, Luna, Paper White, precox.

12. poeticus—

March or April-flowering varieties—

ornatus, poetarum, radiiflorus (angustifolius), tripodalis. [It is no unusual thing for these to throw two or sometimes three flowers on a scape, but this peculiarity is not permanent.—P. B.]

April or May-flowering varieties—

poeticus verus, recurvus, patellaris.

GARDEN VARIETIES OF HYBRIDS (SERIES II).

1. *Humei*—nodding flowers with straight cup, nearly as long as dog-eared floppy perianth, tube variable in length; it connects the section Ajax with Queltia.

Hume's White, Hume's Sulphur, Hume's concolor, Hume's Giant.

2. *Backhousei*—bold habit; flowers horizontal with distinct basal tube, and long cup nearly equalling the spreading perianth; a connecting link with Ajax.

Cupid, Daisy, H. J. Elwes.

3. *Macleai*—sturdy habit, 1-2-flowered; flowers small, horizontal, with short tube, spreading perianth, and cylindrical cup.

major (Sabini), Parkinsoni.

3a. *Nelsoni*—1-flowered; flowers horizontal, with short tube below the broad spreading perianth, the cup cylindrical, rarely expanded at the mouth.

aurantius, expansus, Margaret Jones, major, minor, pulchellus.

3c. *tridymus*—near Nelsoni, but with somewhat more obconical tube, 1 to 3 usually 2-flowered; flowers varying much in size from that of Macleai upwards.

A. Rawson, Duke of Albany, Duchess of Albany, Grand Duke of Hesse, Innocence, Princess Alice, S. A. de Graaf.

4. *Leedsii*—flowers horizontal or drooping, with a long slender tube, spreading or dog-eared pallid perianth, and pale yellow cup varying from canary yellow to whitish, generally dying off white; differing from incomparabilis in the paler hue of its cup.

amabilis, Acis, Aglaia, Alexis, Albion, Ariadne, Arsinöe (gloriosus minor), Beatrice, Ceres, Circe (gloriosus), Cybele, Duchess of Westminster, elegans, Fanny Mason (Vincenti gloriosus), Favourite, Fides, Flora McDonald, Flora, Gem, grandis, Grand Duchess, Grand Duke, Hon. Mrs. Barton, Horner, Ianthe, Io (stellatus), Juno (galanthiflorus major), Katherine Spurrell, Leda, Madge Matthew, Mrs. Langtry, Mignonne, Maude, Minnie Hume, Maria M. de Graaf, Mrs. Barclay, Madame Patti, Oddity, Purity, Princess of Wales, Palmerston, Queen of England, superbus, Venus (galanthiflorus minor).

5. *Barrii*—usually dwarf and slender in habit; flowers horizontal, with long slender neck or tube, and spreading segments twice or more the length of the short expanded cup. (See *Burbidge's Narcissi*, t. 22, as illustrating the main features of the group.

Bullion, conspicuus, conspicuus minor, Lass o' Gowrie, Golden Mary, major, Model.

sulphureus—

Amy, Herbert von Bismarck, Milton, Prince Bismarck.

albidus—

Ada, Beatrice Murray, Cinderella, Eclipse, elegans, Gazelle, General Murray, Jewel, John Stevenson, Lucy, Mrs. Darwin, Mrs. Murray, Maurice Vilmoren, Miriam Barton, Piccio, Romeo, Sylvia, Vivian.

albus—

Betsy, Climax, Diana, Dirk de Graaf, Exquisite, Golden Star, Heroine, Jewess, Lilliput, Lady Gray, Sensation, Silver Star, William Ingram.

6. *poculiformis*—1-2-flowered; flowers nodding, white, with a long, slender, cylindrical tube, and a straight-sided cup, about half as long as the spreading, twisted, somewhat floppy perianth.

7. *gracilis*—rush-leaved, 1-3-flowered; flowers yellow, horizontal, with long slender tubes, spreading perianth, and shallow cup; late flowering.

8. *Burbidgei*—habit of poeticus; flowers horizontal, mostly white, with long slender tube, and usually with a shallow spreading cup, which is frequently stained on the rim more or less distinctly with orange red.

Arabella, Ariel (albidus), Alice Barr, Agnes Barr (delicatus), Amoret, Baroness Heath, Beatrice Heselstine, Boz (luteus), Blanche, conspicuus, Cowslip, Crown Prince, Crown Princess, Dandy (stellatus), Edith Bell, Ellen Barr, Empress Eugénie, elegans, Ethel, Golden Gem, gracilis, Guinever, Johanna, John Bain (grandiflorus), J. Golden Read, Jenny Deans, Joe, Little Dirk, Lottie Simmons, Little John, Mary (expansus), May, Marvel, Model, Ossian, Pearl, Primrose Star, Princess Louise, Robin

Hood, Sulphur Star, Thomas Moore, Absolon (grandiflorus expansus), Vanessa.

MONSTROSITIES.

2. *Pseudo-Narcissus*—

plenus, Telamonius plenus, lobularis plenus, lobularis grandiplenus, nanus plenus [said by Dr. Brown of Hull to have been raised by him from seed, one bulb only, and sent by him to the Conference; one bulb also received amongst bulbs of nanus from Lincolnshire by Mr. T. S. Ware, supposed to be the only double Narcissus raised since the time of Parkinson.—P. B.], cernuus plenus, cernuus bicinctus, capax plenus (eystettensis, Queen Anne's Double Sulphur Daffodil) [no person has yet satisfactorily determined which is the single form of this plant.—P. B.]

5. *incomparabilis*—

aurantius plenus (Butter and Eggs), albus plenus aurantius (Eggs and Bacon, Orange Phoenix), albus plenus sulphureus (Codlings and Cream, Sulphur Phoenix) [the supposed single form of this is semipartitus.—P. B.]

6. odorus—

minor plenus (Queen Anne's Double Jonquil).

8. Jonquilla—

plenus (Double Jonquil).

9. Tazetta—

romanus (Double Roman), nobilissimus.

12. poeticus—

plenus (Gardenia-flowered).

It should perhaps be explained in justice to the real workers in this field, that of the foregoing hybrids No. 1 Hume's hybrid, No. 5 Barr's hybrid, and No. 8 Burbidge's hybrid, bear names which are merely complimentary, the individuals thus complimented having had nothing whatever to do with the raising of the plants. The merit which attaches to the several productions belongs almost wholly to the late Mr. Leeds of Manchester and the late Mr. Backhouse of Weardale, and it is to the efforts of these gentlemen that we are indebted for so large and valuable an accession to the forms of these beautiful flowers which are now available for the decoration of our spring gardens. The exceptions are very few indeed, consisting mainly of the varieties named Gertrude Jekyll and Dr. Masters, which were raised by the late Rev. J. G. Nelson, and some three or four forms due to the labours of M. Max Leichtlin, of whom we may probably yet hear more in this connection, as we believe that gentleman is still earnestly occupied in the good work.—T. M.; P. B.

GRAPE HYACINTHS.

AMONG the early spring-flowering bulbs few, if any, surpass the beautiful and varied forms and colours of the Grape Hyacinth—Muscari. From a purely decorative point of view their suitability for either beds or borders can hardly be over-estimated, although it is only in the former of these two places that they can be seen to the greatest advantage, and for which purpose they are coming extensively into use both in private and public gardens, as well as for the supply of cut flowers in the market. They are also extremely useful for uncultivated places, under the shade of trees, &c., where they invariably hold their position, and even perceptibly increase, under the ordinary circumstances of Nature. Coming into flower as they do just as the Snowdrops and Crocuses are past, they make an agreeable and important succession to them, and, indeed, one we could ill dispense with at the present time.

They seem to thrive in any ordinary garden soil—that is, if it be not too stiff; and although some of them, such as M. Heldreichii and M. Szovitsianum, M. neglectum, &c., increase rapidly, they are easily kept within bounds, becoming as a matter of course more showy and interesting as the clumps increase in size and vigour. The best time I find to plant these is, as with nearly all hardy bulbs, the fall of the year, say from October onwards, well preparing the ground to a good depth with a liberal supply of old leaves before planting, and a depth of from 6 to 9 inches will be found best, as they are then not so easily disturbed by hoeing or cleaning the surface.

As the difference between the species is so small to the unpractised eye, the difficulty may be overcome by giving an extract of Mr. Baker's able summary of the species of Muscari in cultivation, and following it with a few notes on those most useful for cultivation in the garden.

GROUP I.—Perianth of fertile flowers obovoid globose, a little longer than broad; fertile flowers bright blue; leaves lorate, sub-erect.—M. botryoides, Mill., including M. Boraeum, alpestre festinum, and candidum; M. Lelierrei, Bor.; M. Heldreichii, Boiss., pulchellum, Jord. non Held.; M. Strangwaissii, Ten.; M. Aucheri, Baker; M. lingulatum.

GROUP II.—Perianth of fertile flowers obovoid oblong; about half as long again as broad; vernal; fertile flowers blue, broad-leaved.—M. paradoxum, Koch; M. grandifolium, Baker. Narrow-leaved.—M. pulchellum, Held.; M. Elwesii, Baker. Fertile flowers bright dark lilac, broad-leaved.—M. armeniacum, Baker; M. conicum, Baker. Narrow-leaved.—M. dilutum, Baker;

M. Szovitsianum, *Baker*; *M. micranthum*. Fertile flowers nearly white, teeth very little incurved.—*M. pallens*, *Fisch.* Autumnal.—*M. parviflorum*, *Desf.*

GROUP III.—Perianth of fertile flowers obovoid cylindrical, about twice as long as broad; leaves oblanceolate.—*M. latifolium*, *Kirk*; *M. Bourgai*, *Baker*. Leaves lorate; fertile flowers blue-black.—*M. commutatum*, *Guss*; *M. compactum*, *Baker*; *M. neglectum*, *Guss*; *M. pendulum*, *Trout*. Fertile flowers bright violet.—*M. concinnum*, *Baker*.—Leaves subterete; fertile flowers blue-black.—*M. racemosum*, *Mill*; *M. Morduanum*, *Held*. Fertile flowers greenish.—*M. maritimum*, *Desf.* Fertile flowers yellowish.—*M. Gussonei*, *Baker*.

Muscari botryoides, of which there are many useful garden forms and varieties, is one of the earliest to flower. The flower

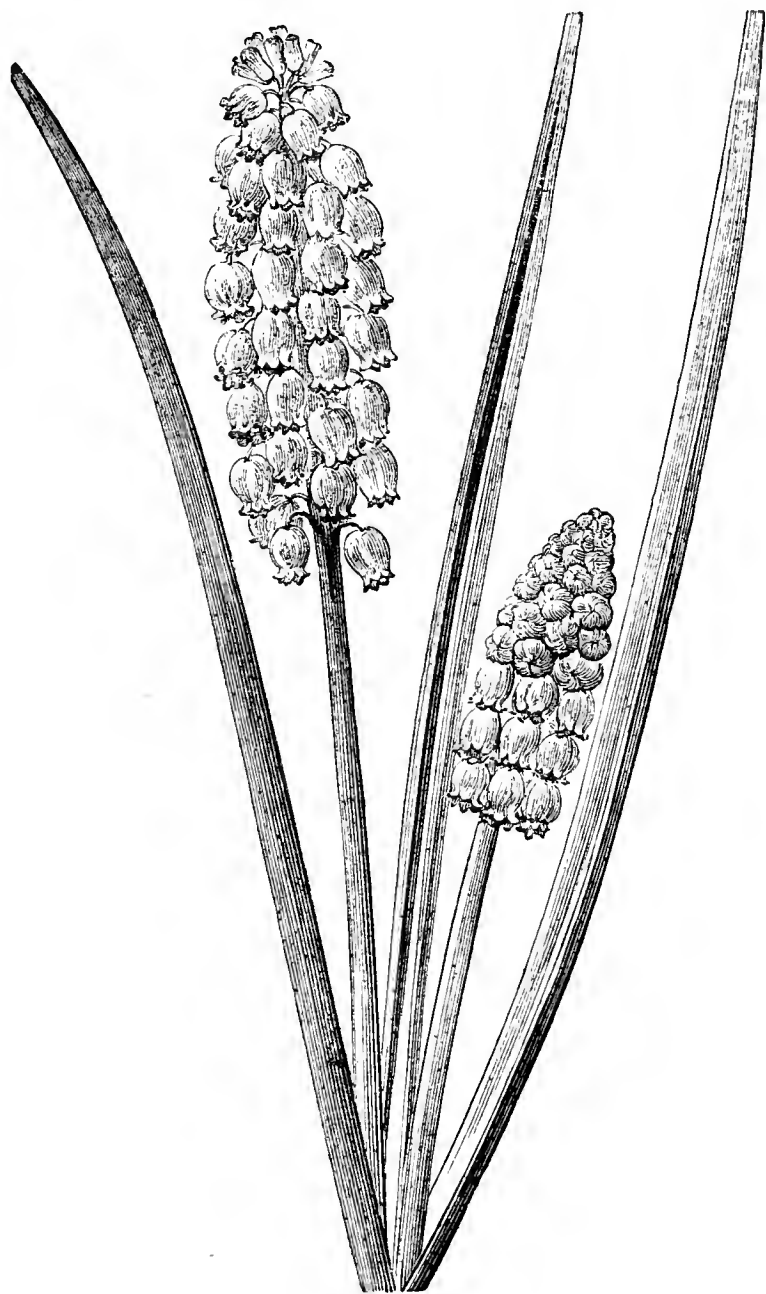


Fig. 88.—*Muscari Szovitsianum*.

heads are nearly an inch long, light blue, and with globular flowers a little longer than broad; the leaves are nearly a foot in length at the time of flowering, glaucous, flat and broad, by which, apart from all other characters, it is easily distinguished from all the others. The varieties *album* and *pallidum* are both desirable plants, the latter especially, from the peculiar and rare shade of its blue.

M. Heldreichii, a variety of which is widely distributed in gardens under the name *pulchellum*, is a very fine free-flowering conical-headed plant, very showy, and having leaves of a beautiful glaucous green tint a little broader than the type. *M. Heldreichii* is nearly related to *M. botryoides*, but it has narrower and more erect leaves and much larger flower heads, increases rapidly, and is extremely useful in pots. *M. Aucheri* is also pretty, and deserves attention.

M. armeniacum is a very pretty and free-flowering species, and although pretty close in general appearance to *M. compactum*, it is easily distinguished from it in having dark lilac instead of blue-coloured flowers. The leaves are broad, nearly a foot long at the time of flowering, deeply channelled, and having an agreeable glaucous green tint. The flower heads are invariably about 2 inches in length, and the flowers, which are packed densely together, are of a dark or livid lilac colour

and having pretty white teeth. The uppermost, or sterile flowers, are bright blue. This species flowers late, often extending well into May, and when nearly all the others are past.

M. Szovitsianum is one of the prettiest and most profuse-flowering species yet introduced to cultivation. It has narrow roundish leaves, about 6 inches in length, much deeper channelled than in the above species, and but slightly glaucous. The flower heads are from 1 to 2 inches in length, flowers bright light blue or lilac, with white teeth slightly recurved. The upper flowers are sparse, much smaller and narrower than the lower ones, which never fail to mark this species. Its flowers, which are very fragrant, are abundantly produced in March and April, each bulb bearing several spikes. Very useful for pot culture. A native of the Caucasus and Persia, and stands our early spring frosts and east winds well. The woodcut, fig. 88, represents two spikes of this species. *M. micranthum*, a very fine and floriferous species, also belongs to this group, as also does *M. conicum*.

M. neglectum, having many flower heads, seldom less than between 2 or 3 inches in length, and having from thirty to forty flowers densely packed together, nearly twice as large as *M. Szovitsianum*, and very fragrant, black-blue, with incurved very pretty white teeth. The leaves are flat, strap-shaped, light green, very useful, and close to which comes *M. compactum* and *M. commutatum*. Found growing in the grassy meadows of Italy and Sicily.

M. racemosum.—This is one of the most easily increased of all the *Muscari*, belonging to the same section as the above, from which, however, it differs in having round instead of flat leaves. It produces yearly immense numbers of small bulbils, which increase rapidly in size, and often attain to the flowering stage the second year. The flowers are nearly black, very interesting, the heads being about 2 inches in length, upper flowers pale blue, contrasting agreeably with the lower.

M. Gussonei, a species with dull yellowish flowers, is still very scarce, but deserving of attention.—*M. S.*

SPORT'S PHYSIOLOGICALLY CONSIDERED.

(Continued from page 232.)

CELL-BUILDING is a process which is constantly going on in plant growth. Beyond the simple formation of cells, this union seems to be the means of the most important changes. To illustrate: The grains of pollen in a blossom are admitted to be independent male cells, which may be removed from one plant to another. In the same blossoms where the male cells are formed are the ovules or female cells, which cannot be removed without destroying them. These male and female cells are not independent parent cells—i.e., they cannot by division form other cells. Separately they can do nothing toward building up the tree, but soon perish. But bring the pollen or male cell in contact with the ovule or female cell, and they at once absorb the cell walls between them, unite their contents, and together form a new cell, which is the embryo or parent cell of a new plant. In this way every seed is formed by the union of the contents of two cells. And here we may see how no plant can, of itself, ever change its kind. If the pollen, or male cell, uniting with the female cell be of the same kind, then the embryo or seed cell must be the same, and the plant will be the same. But let the pollen or male cell be of a different variety, and although they will unite in the same way, yet the embryo or seed cell will be unlike either. It will be a mixed or hybrid cell, and the plant coming from it will be like it. Thus we see that all hybrids come from the union or mixing of the contents of two cells. The same is true of all cross-fertilised seeds. Two cells of different varieties unite to form a seed cell; hence the term "variety hybrid" applies to every crossed variety.

Now, we wish to examine this union of cells a little more closely. When two cells thus unite, each contains a nucleus which appears to be little more than a small collection of protoplasm. But what gives this little particle of protoplasm in the male cell the power to produce such different results when uniting with female cells of different varieties? Or, in other words, what determines the kind of the embryo cell thus formed? In a natural tree, isolated from all others, every seed or embryo will be true to its kind. But in a grafted tree bearing several kinds of fruit, perhaps no two seeds will produce the same kind. Now every nucleus or primordial cell is formed in the protoplasm, and it would seem that the protoplasm should determine the kind, but this is not the fact. Neither is it the root that affords the sap, nor the leaf that elaborates it, nor the protoplasm formed from it. I have a natural Pear tree, which, many years ago, was grafted with the St. Michael. When that Pear cracked so badly I grafted it with the Dunmore. Not satisfied with that fruit, I grafted it again with the Anjou. Thus, I have four kinds of Pear wood growing one above the other. The wild stock furnishes all the sap that passes up through the four kinds of wood, which is elaborated, digested, and assimilated by the Anjou leaves and branches, and forms protoplasm in the cambium of the Anjou top. It is certainly Anjou protoplasm, for it forms Anjou cells, buds, fruit, and wood. But this same Anjou protoplasm passes down a little lower and forms Dunmore cells, buds, fruit, and wood; still lower, it forms St. Michael cells, buds, fruit, and wood; lower still, the wild fruit of fifty years ago is found. And this all takes place when there are only Anjou leaves on the tree. Now, when the protoplasm leaves the Anjou top, it is full of primordial cells formed there, which, if matured there, would be Anjou. What changes their nature as they pass down? I come to the conclusion that each kind of wood must have an inherent power to determine its own kind of fruit, and that the nuclei or primordial cells have their kind determined by the wood where they are matured, and not where they originated. Every kind of wood imparts

something to every parent cell matured in it that determines what kind of fruit the tree coming from it shall bear. And every tree coming from such a cell must be true to its kind. If there is any way by which the contents of two cells, determined by different kinds of wood, should be united, would not the union be a hybrid? We have already seen that such a result follows in hybridising and cross-fertilising. We have also seen that in building up a tree the cells often absorb the cell walls between them, and unite their contents, and proceed to form new cells by their united contents. We are constantly bringing such cells in contact by the process of grafting, and it is in grafted trees that sports are generally, if not always, found. A cell in a scion is placed in contact with a cell in the stock; they absorb the cell walls between them, unite their contents, and these proceed to build a strain of wood different from either; in time this blossoms and bears fruit, uniting the qualities of both scion and stock. It is a graft hybrid, but is called a sport. I think all sports come from a union of cells of different varieties. We may not always trace this. As in the animal kingdom, the mixed strain may reach far back—sometimes over several generations—so in plants; the strain may not become apparent for years, but when it appears it gives a new variety.

There is another union of cells to which I wish to refer. A bud is virtually a single parent cell in its winter costume, with its spring ration enclosed. These bud cells may be split, and the halves of different ones united, thus mixing their contents as effectually as in hybridising. Mr. Meehan assures us that he has done it. During the last season I split the buds of several kinds of Apples and united them, and have three united buds living. I cannot tell what kind of fruit they will bear, but I know that halves of different buds united and grew well. This is a union of different cells, and I see no reason why their substance did not unite to form a parent cell which multiplied itself to build up the shoots just as any other cell does, and I cannot see why it will not be a mixed or hybrid wood, and bear a mixed or hybrid fruit. If so, I shall not call it a sport, but a graft hybrid. And such are all sports. They are hybrids resulting from the union of different cells. This certainly applies to the variegated Laburnum, Jessamine, and Abutilon, which we know were the result of grafting, and I think equally well to the Rose, the Apple, and all other sports. I come to this conclusion from the truths and principles found in the works of the most distinguished authors in our valuable library. Most of these authors speak of sports and graft hybrids, but none attempt to account for them except ex-President Clark of our own college, and he, rather doubtfully, in his report for 1870, says: "It may be possible that a part of a cell of the scion may unite with a part of the cell of the stock, and form a kind of mechanically crossed cell, capable of reproducing itself in infinite variety." This "infinite variety" is foggy. If he had said, capable of producing a new variety, it would have been nearer the truth. But if he had considered what he had already stated about the union of cells by the absorption of their transverse septa, he would have seen that it is not necessary to take parts of cells, but that by simply bringing cells of different varieties together, they will often absorb the intervening cell walls, unite their contents, and form a mixed cell producing a new variety, and all that is mechanical about it is the method by which the cells are brought in contact. From the foregoing I conclude that all vegetable sports are hybrids, produced by the natural union of cells of different varieties, and that when more familiar with the subject we shall no longer call them sports but hybrids.

ROCHDALE AURICULA SOCIETY.

THE second annual Show of this recently revived Society was held in the Public Hall on Saturday last. The display of Auriculas was very good, every class being well filled, and in nearly every case the competition was close. In addition to the Auriculas, collections of stove and greenhouse plants were staged for the decoration of the Hall by S. Barlow, Esq., Stakehill, and J. H. Lancashire, Esq., Deepdish Hill. Mr. Barlow also sent two large baskets of Primula Sieboldi varieties, and one of Primula rosea. Mrs. Scholfield, Fern Lea, sent a good plant of Dendrobium Wardianum, reflecting much credit on her gardener, Mr. Butterworth. Dr. Morris sent a fine plant of Trillium grandiflorum, having thirteen expanded flowers, and a seedling Trillium, which differs from the parent in having much larger flowers and larger and lighter-coloured foliage. This variety is very free-flowering, the plant in question having nineteen expanded blooms. He also staged a good specimen of Cypripedium pubescens. The Society is to be congratulated on the success of their Show. The Judges were Messrs. J. Booth, Failsworth; J. Cheetham, Rochdale; and T. Lancashire, Middleton, and their awards were as follows:—

Six dissimilar Auriculas.—First, Mr. H. Wilson, Halifax; second, Mr. Pohlman, Halifax; third, Mr. W. Bolton, Warrington, the same gentlemen occupying similar positions in the class for fours. The pair class was well filled, and Messrs. Pohlman; S. Barlow, Stakehill; and J. Beswick, Middleton, were the successful exhibitors. In a class for pairs from small growers the prizes were taken by Messrs. L. Heys, executors of J. Fletcher, and E. Elliott, all local growers. The maiden class pairs were allocated to—first, Mr. Brodie, Rochdale; second, A. Potts, Esq., Chester; and third, Mr. S. Lord, Rochdale.

ALPINE AURICULAS.—Four dissimilar varieties.—First, Mr. Beswick; second, Mr. R. Heys, Norden; third, Mr. Pohlman. Single plants.—Premium and first prize, Mr. Pohlman, with seedlings; second, Mr. Beswick, with Goliath of the Alps; third, fourth, and fifth, Mr. R. Heys, with Diadem and seedlings; sixth, Mr. Barlow, with a seedling.

Green edges.—First, Mr. Wilson, with Col. Taylor; second, Mr. Potts, with Prince of Greens; third and seventh, Mr. Pohlman; fourth, Mr. Beswick; fifth, Mr. Potts; and sixth, executors of J. Fletcher.

Grey edges.—First, Mr. Wilson, with Lancashire Hero; Mr. Pohlman taking first, third, fourth, and fifth; Mr. Royds second; and Mr. Bolton sixth prizes.

White edges.—Mr. Lord premium and third with Acme and Catherina; Mr. G. H. Wheeler, Rochdale, second with Trail's Beauty; Mr. H. Wilson second and fourth; Mr. Bolton fifth; and Mr. Pohlman sixth.

Sels.—Mr. Pohlman premium with Ellen Lancaster; Mr. S. Barlow was first, fourth, and sixth with seedlings; Mr. Royds was second with a seedling; Mr. R. Lord, Todmorden, third; and executors of Mr. J. Fletcher, fifth.

POLYANTHUSES.—Pairs.—First, Mr. J. Beswick, with Lancer and Exile; second, executors of J. Fletcher, with Cheshire Favourite and George IV.; third, Mr. R. Heys, with Cheshire Favourite and George IV.; fourth, Mr. S. Barlow, with a seedling and Prince Regent. In single plants Mr. Beswick took the premium, first, second, third, and sixth prizes; Mr. Barlow was fourth; and Mr. S. Lord fifth.—JAMES BRODIE, Hon. Sec.



KITCHEN GARDEN.

MAY is one of the most trying months for the kitchen gardener, as a constant watch has to be kept on young seedlings. Failures of seed will now be found. All kinds of grubs and insects are most likely to attack tender young crops, and, worst of all, the weather may not prove so genial as could be desired. Having to contend with these difficulties makes May anything but a comfortable month, and we can only advise perseverance, as in a few weeks everything will be growing strongly, and any extra attention devoted to the crops now will be amply compensated for by-and-by.

Snails and slugs are always plentiful and very active at this season. In the early morning and just before dark at night are their favourite feeding times. In wet weather they are sure to be busy then, but when the ground is hard and dry they are not troublesome. All young vegetables are liable to be eaten by them, and we strongly recommend a sharp supervision. Gathering them with the hands is a very good way of dealing with them. Two or three of our garden boys scour our kitchen garden every morning by six o'clock, and we never suffer much from these pests. Soot and lime in a dry dusty state are also excellent for destroying them, and they act as fertilisers as well. If small handfuls of bran are put down about 6 P.M. covered with a Cabbage or Rhubarb leaf, and looked at three hours afterwards, crowds of snails will be found congregated on the bran, and they can then be destroyed. This is the best of all traps for them.

Salsafy and Scorzoneria.—These are most useful winter vegetables, and to have them in perfection from November onwards the seed should be sown now. An open soil is most suitable for them; the drills should be 15 inches apart, 2 inches deep, and the seed should be sown very thinly, as ultimately the plants should stand 10 inches apart.

Celery.—The earliest may now be put out in the trenches. The plants should be lifted from their present quarters with good balls of soil attached to the roots, and as soon as they are planted in the trenches a thorough good watering should be given. Attention must be given to this at all times as the only means of preventing early Celery running to seed. Respecting the distance they should stand apart, we never like to have the plants closer to each other than 10 inches.

Runner Beans.—Do not sow all these at once or in May, but keep some and sow about the middle of June, when a fine lot of healthy tall bearing plants will be the result. It is a common mistake to sow this crop too early, and the consequence is that tender pods are generally very scarce in October and November, but they need not be so if this hint is borne in mind.

Cauliflowers.—Fill up any blanks which may occur in the plantations. Thin out plants from the seed beds, and dibble them in where they will have more room. Sow a pinch of seed of Veitch's Autumn Giant to produce plants for putting out after Potatoes are lifted in June, and these will produce a fine batch of late heads in November.

Cabbages.—These are now heading freely. In cutting them, if the stumps are left they will produce a fine lot of small sprouts in two or three months hence, but where this plan is not followed clear them off at once and fill up with other crops. We prefer to have successional batches of plants heading rather than keep on the old ones and sow frequently. If a quantity of Suttons' All Heart or Dickson's Redbraes is sown now a fine lot of young and tender heads will be produced in September and October, and they are very acceptable then. Earth up spring-planted Cabbages, and do not let weeds grow between any of them.

Potatoes.—In many gardens Broccoli quarters are only now being cleared, and if any of their owners are doubtful as to whether to plant Potatoes there, we would say, Plant by all means. Early and second earlies are the best to put in, but all varieties will do well if the situation is favourable. Earth up all the early ones which are now showing above the soil in quantities. Any which may have been frosted down will sprout up again, although the stems will never be so strong, and the crop will be lighter than it would have been had all gone on well.

Watering.—In sowing seed or planting in very dry soil it is an advantage to water thoroughly after these operations; and when any vegetable crop, such as Peas or Beans, Lettuces or Cauliflowers, show signs of suffering for want of water it is best to give them a supply, but nothing is gained by surface dribblings, and merely wetting the foliage or the surface of the soil is worse than nothing. Water thoroughly or not at all, and then it does not matter whether it is done in the morning, noon, or night.

FRUIT FORCING.

PEACHES AND NECTARINES.—Earliest House.—As the fruit approaches ripeness, more air with a gradual diminution in the supply of moisture with a gentle heat in the pipes will insure good flavour.

Exercise great care in the removal of the fruit from the trees, as the slightest pressure of the fingers disfigures the fruit; and do not allow them to remain on the trees until they are dead ripe, when it is past its best for eating, the fruit being best gathered when it parts readily from the trees and laid on a padded shelf in the fruit room for a day or two, whilst that intended for packing should be gathered a day or two in advance of ripening as compared with that for home use.

Succession Houses.—Proceed with the usual routine, keeping the trees in vigorous health by the timely application of water to the roots and foliage, and mulch the borders with short partially decayed manure. Attend to early ventilation, and close early so as to husband the sun heat, and with plenty of moisture the swelling will be considerably accelerated. Should red spider appear more forcible syringings should be resorted to, to dislodge it, and if these do not answer promptly apply an insecticide, whilst for mildew dust with flowers of sulphur. If aphides be present fumigate on two or three consecutive evenings moderately, being careful to have the foliage dry and to deliver the smoke cool. In the battle with insects it is important that the onslaught be made upon their first appearance and before they have obtained a hold on the trees, when the moderate use of insecticides would prevent their spreading and injuring the foliage and fruit. Allow a moderate extension of the growth whilst the fruit is stoning, and in no case encourage more shoots than will be necessary for tying-in to furnish the trees and to supply wood for future bearing.

Late Houses.—The fruit in these promises to be more than usually valuable from the scarcity of fruit on the open walls in autumn; hence where there is a demand for late fruit arrangements should be made for meeting the deficiency by retarding the late trees in houses and wall cases, which must be done in the earlier stages of growth, and this is in every way preferable to shading the house when the fruit begins to ripen. If taken in hand now the midseason varieties may be kept back so as to ripen in September; but to effect this it will be necessary to throw open all doors and ventilators when the weather is mild, and to keep the floors well damped with cold water. Mulch over the roots with short manure, keeping it constantly moist, and in the case of trees that do not need stimulating employ cocoa-nut fibre refuse. The borders should be freely watered through the growing season.

MELONS.—*In Pits and Frames.*—When the pits and frames have been cleared of early Potatoes, &c., they may be filled with plants that have been reared for the purpose. In most cases it will be advisable to turn over the leaves, adding a little fresh litter or leaves, so as to bring up the bed to the required distance from the glass, allowing a few inches for settling, which will entirely depend on the manner the bed is made, for with the leaves firmly trodden together at the time of placing them in the pit the subsidence will not be great, but when put in loosely it will be considerable. In the case of beds for frames merely turning over the materials and adding a little fresh to keep up the sides will generate a genial heat sufficient to give the plants a start. Level the surface and put in the centre of each light a couple of barrowloads of soil, rather strong loam being most suitable, and spread this out so that a flattened hillock is formed 10 inches in depth, and the surface of the bed covered with soil 2 inches thick, and when this has been in the frames a couple of days the plants may be put out. Place a plant in the centre of each hillock, the plants having been well watered a few hours previous, pressing the soil firmly about them in planting; and if the sun be bright shade for a few hours daily until the plants become established, when it must be discontinued. Although it is advisable to turn over the beds and add a little fresh material, it may be dispensed with when the soil in the pits is already sufficiently near the glass, treading the soil down firmly and raising it a little in the centre of each light, so that the water may drain away from the collar of the plant. Admit a little air at about eight o'clock when there is the prospect of a fine day, and this will prevent scorching, keeping it through the day at 80° to 85°, and close at 3 to 4 P.M. on fine days, or earlier, according to the weather. Sow seed for raising plants to put out in pits, frames, or houses that will soon be cleared of bedding plants, bottom heat in their case not being essential, as by keeping close, ventilating early in the day, and closing as soon as safe in the afternoon, satisfactory crops may be obtained and be useful, as outdoor fruits do not promise to be very plentiful.

Cucumbers.—Plants in houses will need syringing twice a day, and both ways, so that every part of the foliage may be thoroughly cleansed of red spider; but if this obtain a hold use an insecticide at a safe strength. For thrips fumigate carefully, the same means being employed to destroy aphides. Afford liberal and frequent applications of tepid liquid manure to plants in full bearing, and be careful not to overcrop. Reduce fire heat as much as practicable, and let the atmospheric moisture be correspondingly reduced. Attend to the plants not less than twice a week for stopping, thinning out old growths and training young in their place, so as to keep up a succession of bearing wood; but be careful not to overcrowd, removing bad leaves as they appear. Shade only to prevent flagging.

Plants in frames will need watering over the foliage on fine afternoons, but every second or third day will be ample, and on dull days must not be practised. Keep the growths stopped one joint beyond the fruit, and do not allow them to become overcrowded, but thin out both young and exhausted growths gradually, keeping up a steady succession of growth showing fruit, and so insure an unbroken succession. To secure straight fine looking fruit place them in glasses. If necessary, sow for succession, it being better to have an over rather than an under supply of fruit. Still continue night coverings and attend to the linings as necessary.

PLANT HOUSES.

Phajus grandifolius.—Plants that have rested may now be turned out

of their pots, and the whole of the old soil shaken from their roots and fresh supplied. This should be done annually, for they will grow more luxuriantly when subject to this treatment than if left undisturbed for two or three years. While in active growth this Phajus requires abundance of water, and the soil soon becomes sour, which they dislike about their roots. For purposes of decoration they are the best in 7-inch or 8-inch pots, or even smaller. The pots should be well drained, but the soil must not be elevated above the rim of their pots; on the contrary, when potting is finished sufficient space should be left for water. In potting the soil must be worked well and carefully amongst the roots, and pressed moderately firmly into the pots. After potting place them in a close moist temperature of about 65° at night, and they will soon start into growth. Particular attention is needed in watering at first, for they make several inches of growth before fresh roots are formed; and if over-watered before their roots are active they seldom grow well or strongly. It is much better to err on the side of dryness than to give too much; in fact, if the atmosphere is moist very little water will be needed. These plants should not be syringed until they are growing freely, or the foliage is liable to become spotted. When they are growing freely and rooting the old foliage may be removed. The compost most suitable is good fibry peat and loam in equal parts, about one-seventh of cow manure prepared by drying, and then passed through a fine sieve; a little charcoal, meal, and quarter-inch bones and sand.

Calanthes.—The earliest plants of these have commenced growing from the base of last year's pseudo-bulbs, and may now be potted without further delay. A number may be placed together in pots if specimen plants are required, or they can be grown singly, which is the best for decorative purposes, as the smaller the pots the easier they are hidden when in flower by Ferns and other plants. The compost, temperature, watering, and syringing advised for Phajus will suit these plants well. If the watering be left to the inexperienced place them singly into 3-inch pots, to be transferred into 5-inch and 6-inch when they are growing and rooting freely. Careful watering and withholding the syringe in the early stages of growth is the secret of success. Calanthes do well in small wire baskets suspended from the roof, and when well grown they have a charming appearance when in flower. In baskets they should be started in pots, placing three or four together, according to the size of the baskets, in the smallest pots in which they can be placed, and finally, when growing freely, into the baskets. To increase the stock retain and pot all the old pseudo-bulbs, for nearly the whole of *C. Veitchii* will make plants. The tops of strong pseudo-bulbs may also be taken off and potted for the same purpose, and if strong many of them will flower in the autumn and winter.

Cattleyas.—These may be kept a few degrees warmer, the house ranging at night from 60° to 65°, with a rise of 10° by day. As many of them have commenced growth and are rooting freely, air should be admitted daily when favourable, and more moisture may be maintained in the atmosphere than has been necessary up to the present time. More water should also be given to those that are rooting freely. Care must be taken that water does not lodge in the young growths, for they are liable to damp if the atmosphere of the house is kept close and confined. If air is freely admitted after the plants have been watered there will be no danger from this cause. Those in flower should be stood at the coolest and driest end of the house, as the flowers will last much longer that they will at the warmer and moister end. If the plants can be taken into another structure while in flower so much the better. A sharp look-out must be kept for scale and thrips, especially the latter, which will soon spread and do much mischief if not eradicated.

Dendrobiums.—Such species as *D. Farmerii*, *D. chrysotoxum*, *D. densiflorum*, *D. thyrsiflorum* and others of this style of growth that have flowered have commenced pushing their growths from the base, and are in the best condition for repotting if they need it. These should be examined, whether grown in pots or baskets; if the latter are decayed give a larger size. As much of the old decomposed soil about their roots as possible should be removed, and fresh peat fibre and one-third moss with lumps of charcoal intermixed supplied. If in pots and well rooted the pots should be broken, and the portions to which the roots cling should not be disturbed but placed into the new pots. The pots must be well drained and the plants raised well above the rim. The surface should not be mossed until the plants are growing and rooting freely. Charcoal in good-sized lumps should be used freely. Water carefully until the plants are rooting freely, when liberal quantities may be given. Plants of *D. Devonianum*, *D. Wardianum*, *D. nobile*, *D. chrysanthum*, *D. crassinode*, *D. crystallinum*, *D. primulinum*, and many others in active growth should be syringed twice daily and given abundance of water. Watch the first-mentioned, for it is very subject to red spider, and must be sponged with a weak solution of Fir tree oil if observed, or it will soon arrest the growth. Red spider will not give much trouble if the atmosphere is kept moist and the plants well syringed.



SPRING PROSPECTS FOR 1884.

WHEN the cold dreary days and long nights of winter are over and the warm breath of spring is felt bees begin to stir themselves, casting aside with unmistakeable vigour the inactivity which has

through a wise rule of Nature kept our little friends in the warm shelter of the hive when to venture forth would mean certain death to them. We have now, however, reached a season of great activity among bees, and usually the enthusiasm and energy visible about every healthy stock is communicated to their owner, and displays itself in the increased interest taken in the bee corner of the garden. Business men are generally from home during the warmer hours of the day when bee work is most brisk, so that the first, what bee-keepers term "Glorious bee day," is enjoyed often during a Sunday stroll in the garden on a warm April day when pollen abounds nearly everywhere, or at least everywhere in the country wherever a Dandelion has room to grow. And does it not seem as if a contest was being carried on between our best stocks to see which could gather most in a given time. The bees appear to work for dear life, tumbling over each other in their desperate anxiety to get rid of one load and start off for another. No apiarian worthy of the name can have escaped the contagion of a scene like this, however careless he may have been about his bees, and no matter how small the interest taken in them while winter lasted, there is no avoiding the rousing-up which an hour among a dozen hives gives at such a time.

Unfortunately there is a tendency on the part of the inexperienced bee-keeper to allow this waking-up to run away with his discretion, and he wants to be as busy as his bees. Now there is nothing more commendable than the desire to be actively at work, pushing everything judiciously forward at the proper time in every possible way. But we must caution our readers against allowing interference with bees at this time to take a wrong direction which may have a very contrary effect to that intended. For instance, when a stock is seen for the first time working very vigorously, an almost irresistible impulse urges its owner to open the hive and examine the brood combs, not because there is any necessity for such examination other than a desire to know what progress is being made. We need hardly say how unwise it is to disturb bees in spring oftener than is absolutely necessary. There is in the modern system of management quite disturbance enough when giving additional combs or uncapping food, &c., so that anything like opening up stocks to satisfy curiosity, precisely as if a gardener dug up his seeds regularly with the very laudable view of seeing how they are getting on. We are induced to make these observations because the beautiful weather in the early part of April would lead many to begin taking liberties by way of manipulating hives and examining their contents at times when they would have been best left alone. Had the favourable weather continued it would have given an opportunity of considerably hastening brood nests in all hives of sufficient strength, but as it did not last more than a week such operations have been delayed. A change occurred when the perennial east wind began to blow, as it nearly always does at the wrong time for invalids and bee-keepers, and nearly the whole of the latter part of April has been rather unfavourable to bee prospects. Work could only proceed fitfully and at uncertain intervals. Where all has been put into close and cosy a condition as possible, entrances carefully watched, and feeding slowly and regularly kept up, much progress has been made inside our hives, so that we find most of our stocks in very fair condition indeed considering all things.

The mortality of the past winter has been much below the average, for except in cases of absolute starvation very few stocks so far as we can learn have perished. There has been an immense show of bloom on fruit trees of all kinds, and whenever the leaden clouds which have so persistently excluded the sun's rays for a great portion of the month allowed the warmth to be felt, it has been very cheering to bee-keepers to note how plentifully both honey and pollen could be gathered. Judging from a careful examination of our own stocks, and taking things altogether, we think the prospects of bee culture are very promising for a really good season.—W. B. C., *Higher Bebington*.

BEEES AND FLOWERS.

A VALUABLE paper upon "The Methodic Habits of Insects when Visiting Flowers," recently published in the "Entomologist," contains sundry comments on and explanations of some tabulated results of observations, which had been previously published by the Linnæan Society. From this paper we glean a few facts which are of general interest to bee-keepers. It is the positive conclusion of the author, Mr. R. M. Christy, that although it is admitted that insects of various orders play an active part in the fertilisation of flowers (that is, by conveying pollen from place to place, as also by their movements within flowers, aiding the transference of pollen from the anthers to the stigma), fully half this work is done by bees. The hive bee proves itself the most valuable of all, from the methodic habit upon which it almost invariably works, the only exception being that an individual will now and then be rather erratic in early spring. As yet, however, it has not been ascertained whether the Ligurian bee or the lately imported Cyprian bee imitate the old tenant of our hives in this particular.

Giving further explanation, Mr. Christy remarks that the method of the hive bee is shown by its strictly confining itself, while in its circuits amongst flowers, to the species it has first selected, rejecting or passing by other species that in form and colour may have a near resemblance. In a very large number of instances he believes that a bee seeks out but one species when taking its daily flight, although possibly each day might have a variation, but he rather thinks that for a longer time than that bees limit themselves to two or three favourites, and follow these up till they go out of flower perhaps. But, on the other hand, the majority belonging to a hive do not act in concert; still, amongst bees generally, is noticeable a preference for flowers that are blue. Colour is not their guide on the whole, it would appear, and it is suggested that a fine sense of smell guides them in their choice or rejection.

Mr. Darwin in one of his valuable books indicated this reason for the method shown by insects when visiting flowers. He says: "They are thus enabled to work quicker, they have learnt how to stand in the best position on the flower, and how far, and in what direction to insert the proboscis or trunk. They act on the same principle as an artificer does who has to make half a dozen engines, and who saves time by making consecutively each wheel and part for all of them." There are exceptions, it seems, to the systematic mode of working, caused by some bees being unable to distinguish closely allied species, and the humble bee takes rank as being more stupid than the hive bee. Such genera as *Ranunculus*, *Trifolium*, and *Primula* prove a puzzle to some, hence the production of hybrids through bee agency.

Bees have, so it is stated, a good sight for short distances, but a poor sight for long distances. When upon a flower a bee will stretch out its proboscis to obtain the honey from another that is near enough to be reached, or even fly a few inches from flower to flower upon a plant. On starting again it mostly flies in an irregular, apparently purposeless manner, and will often pass without notice flowers of the kind it is in search of; also a bee will unintentionally visit the same flower twice, or even thrice.—J. R. S. C.

SYRIAN BEES v. BLACKS.

BRIEFLY, in reply to "Hallamshire," the quotations referred to are taken from Mr. Doolittle's last article on the subject, being a reiterated statement, and a reply to Mr. Burton, which has not been answered. As to the charge of untruthfulness, to myself it is of little consequence, as I write under initials, but to Mr. Doolittle the charge would be more serious, even if less transparently gratuitous. One point will suffice to assay its value. It will be remembered that "Hallamshire," to carry conviction that Syrians were superior to blacks, stated that £20 of profit had been obtained in one year from one stock of Syrians, "while blacks did not gather enough honey to winter on." To this I remarked that the £20 quoted could not be the one I knew of, as that was made in the year 1881, when all stocks did well (I had in remembrance Mr. Abbott's instance as mentioned in the *British Bee Journal*). It now appears from "Hallamshire's" letter that this was the identical instance in the year 1881. Mr. Abbott says, page 64 of *British Bee Journal*, 1881, "Small nuclei with only a handful of bees in them to hatch out queens, have filled and been extracted repeatedly, and swarms and casts too small to send out (i.e., to sell) have produced treble their value in honey." "Hallamshire" says black stocks "did not gather enough to winter on." Comment is needless.—K. B. K.

TRADE CATALOGUES RECEIVED.

Thos. S. Ware, Tottenham.—*Catalogue of Dahlias*.
Cranston's Nursery and Seed Company, King's Acre, near Hereford.—*Catalogue of Roses and Herbaceous Plants*.
J. Cheal & Sons, Crawley, Sussex.—*Catalogue of Spring Flowers*; also *Catalogue of Florists' Flowers*.
Stephen Brown, Weston-super-Mare.—*Catalogue of Bedding Plants*.
Hennequin, Denis et Cie., Angers (Main et Loire).—*Catalogue of Flower and Vegetable Seeds*.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper

only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

COMMUNICATIONS.—Owing to the great pressure on our columns, several letters and communications that arrived on Tuesday and Wednesday mornings cannot be inserted this week.

Summer-pinching Fruit Trees (F. J.).—The "correct thing" is to study the condition of the trees and act accordingly. If they are fairly vigorous you may pinch early, but if inclined to be weak it is better to defer the operation, as their extended growth will encourage root-action. You will not err by allowing them to grow a little longer, and then pinch to four or five leaves. By pinching to three all the back buds might start if the trees are vigorous, and thus you would defeat your object.

Shoulders on Vine Bunches (L. Bannerman).—If the sketch you have sent is accurate, or nearly so (and we have no reason for doubt on that matter since we have seen hundreds of bunches like it), by all means take off the top isolated shoulder at once, or it will spoil what without it will be a good-sized and handsomely formed bunch of Grapes.

Propagating Passiflora (G. W.).—Portions of young shoots just getting a little firm, but not by any means hard, made into cuttings 3 or 4 inches long, strike freely if inserted in sandy soil and covered with a bellglass in a warm house, but the soil must be kept moist and the cuttings shaded to prevent flagging. We scarcely understand the condition of the slip to which you refer, but from what we can gather from your letter you appear to be adopting the best method of striking it.

Fungus on Tacsonia (R. C. W.).—The fungus is not the cause of the injury to the stem of your plant, but a result of it. The exuding sap affords a suitable medium for the germination of the spores, and the fungus spreads, as in the example you have sent. If you do not check the escape of sap and heal the wound in the stem your plant may collapse. We advise you to mix some powdered charcoal and freshly slaked lime together and cover the wound thickly. If the powder gets moist apply more, and with a little perseverance we think you will succeed in your object.

Topping Melons (Reader).—You have evidently missed some words out of your letter accidentally, and thus rendered your question somewhat obscure. We gather, however, that you chiefly want to know if a growth resulting from the topping will do as a leader for producing laterals for bearing fruit. It will do very well if the plants are well grown. We have grown hundreds of fruit during a series of years on plants similarly treated. If you desire to know more than this please state your wants as clearly as possible.

Apricots Eaten (W. S.).—We suspect that some of the fruits have been injured by frost, and have fallen off in consequence, while others may have been imperfectly fertilised, and therefore have not swelled. The fruits on the spray sent appear to have been eaten by large snails about the time of setting, and as the fruits swelled the injury would become more apparent. The tree is infested with leaf-rolling maggots, and unless these are picked off they will do much injury.

Setting Melons (Uxbridge).—You had better fertilise the flowers as they expand, about the middle of the forenoon when the pollen is dry being a favourable time for the work, and then when you have a sufficient number of fruits swelling regularly you can remove the surplus, and by that time few other flowers will be produced. The precise number of fruits to leave depends on the size and condition of the plants. Possibly the comparative failure last year was due, to some extent at least, to too much moisture in the frame and too little heat. This is often the case with frames heated with manure unless great care is exercised in adding fresh linings and using coverings for the glass judiciously.

Pelargoniums Luxuriant (San Juan).—It is not often that Zonal Pelargoniums produce such luxuriantly abnormal trusses, and we can only attribute the result in your case to an excess of nitrogenous matter in the soil, the result of the decaying turf and the added manure. An admixture of lime rubbish and very firm potting would have prevented the evil, which, however, we do not think will recur with these plants, though young and vigorous examples, unless potted as indicated, may be similarly disappointing. The spot is a disease apparently not more easy to account for than many little ailments which affect individuals. If the disease spreads the only remedy is to cut down the plants quite below the parts affected.

Mildew on Roscs (Idem).—In all probability the plants need more nourishment at the roots. Until the turf decayed they grew freely, but since then they have not had the support that was necessary for keeping them healthy. Give liquid manure copiously, with fresh soil if needed. Sulphur the pipes, also syringe the plants with a mixture of softsoap and sulphur. Mr. Bardney, who grows hundreds of Roses under glass, never has any mildew on them, but prevents its appearance. He boils 4 lbs. of softsoap for twenty minutes, then adds four gallons of water, and half a pint of this is added to four gallons of water and used every time syringing is done, whether once or twice a day.

Millipedes and Peas (J. A.).—The small worms you have sent are of a species of *Julus*, commonly known as millipedes, which appear to be unusually numerous this year, possibly in consequence of the extremely mild winter. We can suggest no safer mode of eradicating them than periodical applications of clear lime water. Try the effects of it and favour us with the results. You might also try petroleum experimentally, commencing with an ounce of the oil well incorporated in a gallon of water by violent and constant agitation during its application. The spray you have sent is of *Euonymus radicans*, which is grown for the beauty of its foliage, and you will possibly have to wait some time before the shrub flowers.

Abnormal Vine Leaves (J. G. & Co.).—We attribute the distorted condition of the leaves you have sent to a sharp current of air when the Vines were starting, which checked the expansion of the foliage, in fact injured the cuticle. When the force of the sap became greater the parts that were not injured developed with the curious result of which you have sent examples. We suspect also by the appearance of the large uninjured leaf that a rather high temperature has been maintained, and this would

render the effect of a driving current of cold air the more injurious. We have seen a similar example of distorted foliage on a Vine that was undoubtedly caused by the frost wind driving through the aperture over the top of a door, and when this was prevented the Vine produced no more abnormal leaves.

Mushroom Bed Failing (J. S.).—It is no trouble to us to answer the questions of our regular subscribers. In all probability the surface of the bed has been kept too warm, and perhaps been too thickly covered, hence the spawn has been attracted upwards, and has not taken possession of the bulk of manure. The temperature you name (65°) is about 10° too high for producing large fleshy Mushrooms. There are no finer Mushrooms produced than when a good portion of straw is included in the manure, but it must be well prepared. If you have not read Wright's "Mushrooms for the Million" the sooner you obtain it the better. It can be had post free from this office in return for 1s. 2d. in stamps. You can send stamps for your quarterly or half-yearly subscription to the Journal if you like, since you find it so difficult to get a post-office order. It appears you have not seen the paper since we answered your last question.

Amaryllis formosissima (Trike).—You are fortunate if all the imported bulbs you obtain produce flowers, as failures are not by any means uncommon. After flowering the plants must have a very light position in a moderately warm house or frame, and be induced to develop stout healthy foliage. In a very hot sunny position in summer the growth will become matured, this being essential for the production of future flowers. With active roots the plants must be freely watered until the leaves are fully developed, when the supply should be gradually reduced, and towards the autumn it may be withheld altogether.

Training Cucumbers (Idem).—You have done right so far provided the leaders are a foot apart. If they do not produce fruit-bearing laterals naturally, as they ought to do when half way up the trellis, the leaders may be topped again; the laterals that will follow should then be pinched either at the fruit or a leaf beyond it, according as space suggests, the pinching to be done as soon as the incipient fruit is seen, and one of the growths can be retained as a leader.

Marechal Niel Rose and Heliotrope (Idem).—We should shorten the shoots that have bloomed to such strong buds that you find show signs of starting freely, top-dress the roots if needed by removing a portion of the old soil and adding fresh, grow the plant in a very light house, keeping the foliage scrupulously clean, and thus induce young growths that would ripen and produce flowers another year. This Rose flowers much more freely on the young shoots made after this period than on the older wood that is shortened to spurs. Any variety of free-growing Heliotrope will do for the back wall, but we should grow it to a good size in a pot before planting in the border, and especially if the position be shaded.

Strawberries not Swelling (R. S.).—Assuming the plants have received no check at the roots, either by being allowed to get too dry at some time or by an overdose of liquid manure, we can only account for the hard state of the fruit to the sudden appearance of the sun acting powerfully on them after several days of dull weather. In the hot summer of 1868 we had quantities of Strawberries out of doors similar to those you have sent, and the only good fruits of President were obtained from under the leaves. If the roots of your plants are perfectly healthy we suspect we have indicated the cause of the evil, and we regret its occurrence on such a large scale, as it must be highly disappointing.

Mushroom Bed not Heating (Invicta, York).—The drenching that the manure received and then making into a bed so small is quite sufficient to account for the failure. Even the best of materials would scarcely ferment in cold weather in such small bulk. Even a trial bed should be at least 3 yards long. Small quantities of manure should be prepared under cover, such as in a shed or under a temporary arch of boards, zinc, or thatched hurdles. No particular time can be named for inserting the spawn. The only safe course to pursue is to wait until the bed has heated to its maximum and the temperature has commenced declining; then when it is about 80°, or perceptibly warm 2 inches below the surface, the spawn may be inserted. If a very thick covering of straw does not incite fermentation in your bed the only means to adopt is to get some fresh manure, making this the foundation, and covering it at least a foot thick with your present sweetened but cold material. The bed, however, is not large enough. The prices alluded to are retail.

Liquid Manure for Pansies (F. J.).—The diluted drainings from manure heaps are good for Pansies. Half a peck of cow or sheep manure placed in a cask containing from 20 to 30 gallons of water would also give you an excellent stimulant for the plants. Soot water made as has been so often described is also safe and good. This and all liquid manure should be used in a clear state, which may be effected by placing a few lumps of lime in the vessel, and afterwards removing the scum from the surface of the water. We have not had any complaints relative to the advertiser you mention, and we have therefore no reason to doubt his respectability. We will forward your letter to him if you desire us to do so.

Heating from Kitchen Boiler (J. Baron).—The water would not circulate in pipes 4 feet below the top of the boiler unless first forced into a water box at least 4 feet above it, and from this conducted round the conservatory. Then the boiler would have to be closed—not have a lid, as so many kitchen boilers have, and a feed cistern would have to be placed over the pipes in their highest point, and consequently the furthest from the boiler, level with the water box above alluded to. The water would then circulate, but not perhaps very briskly, whereas if pipes were simply taken from the boiler and made to dip down to the house below it would not circulate at all.

Lawn Sprinkler (An Old Subscriber).—We do not know the particular "sprinkler" to which you refer. If it is the same as an irrigator that has been exhibited in the Royal Horticultural Society's gardens by Mr. J. Deverill of Slough, it is useful for the purpose of watering lawns. It consists of pipes of various lengths elevated on a wheel carriage and furnished with jet and spray roses. It is readily moved about, and lawns are speedily and well watered where a good supply of water can be turned on for the purpose. It was awarded a certificate of merit in 1883. Endeavours shall be made to obtain the information you need on cotton culture.

Double Daisies (S. J. W.).—If all the twelve varieties have turned out to be "rubbish" we are strongly of opinion that the fault is in the soil or in the treatment to which the plants have been subjected. The best of varieties are very unsatisfactory in poor soil, or if they have been removed at the wrong time and not become established. Florists attach fanciful names to Daisies. There is a very fine white variety known as Victoria, The Bride, and Giant White; there is also a large deep red quilled variety known under the name of Rob Roy and Giant Red; also a mottled red-and-white variety that is very good. Those are the most effective we know, and are very fine when produced in the best condition; but grown under unfavourable circumstances they are inferior, and may be characterised as "rubbish." *Stipa elegantissima* is similar to *S. pennata*, and requires the same treatment. It is hardy, but not more beautiful than *S. pennata*.

Soil for Chrysanthemums (W. J.).—You write so intelligently, and appear to have such a thorough grasp of your subject, and as a consequence recognise the importance of proceeding cautiously, that we have no fear you will make any serious mistake in the soil you decide to use. As to the prepared composts, everything depends on the quantity of urine that was used in the soil; still, as it was safe for Cucumbers, and is likely to answer for Fuchsias, it will be safe for Chrysanthemums. The question is whether the lightness of the loam will unduly impair its lasting qualities. We fear this would be so, and though the plants may grow well for a time, their strength will not be sustained. We should consider the advisability of drying some clay and pounding it for adding to the compost. You will be the best judge on this matter, also of the quantity to use, as we cannot with sufficient exactitude comprehend the nature of loam that we have not seen. We think, too, a little lime rubbish and wood ashes would be an advantage, as we suspect that nitrogenous matter unduly preponderates in the compost, and might produce succulent growth. You can pot the firmer by such additions without impairing the porosity of the soil, and firm potting with light loam is desirable. If you can burn, or rather scorch some clay or heavy soil, then crush it, this would undoubtedly be good for mixing with the light and rich compost. Our reply is in the form of suggestions, and we can safely leave you to make the best use of them under the circumstances.

Vines not Thriving (G. McG.).—It is seldom that young Vines grow freely when planted in old Vine borders, unless stations of fresh soil are prepared for them, and they are then really in new miniature borders formed in the old. The failure, of which we have seen many instances, is more decisive if a considerable length of young cane is left when planting, as frequently must be the case for it to reach within the house or the wires, and severely shortening such newly planted Vines in the autumn previous to their insertion is always an advantage. When the roots do not readily take possession of the soil, and they certainly will not enter the old soil of a Vine border freely, the sap is extracted from the canes by the numerous buds more quickly than it is supplied by the roots. The growth is then stunted, premature ripening takes place, and not infrequently a species of fungus attacks the foliage, as in the example before us. The rusted or warted appearance of the leaves is, however, mainly due to excessive transpiration and the consequent shrinking of the tissue owing to the relatively weaker root-power and a deficiency of sap to compensate for moisture that has been lost. Sulphur will destroy the fungus, but that, we fear, will not be sufficient to induce the Vine to grow freely. In such paralysed Vines a healthy lateral not infrequently issues from the lower part of the rod, and when this is so it is a good plan to cut the Vine down to that portion, and healthy growth may follow. If the growth has several expanded leaves the rod may be cut down now and little bleeding will follow, as the healthy lateral will take the sap and grow more strongly in consequence. Under any circumstances such stubborn Vines may be cut down in the hope of a free-growing cane issuing from the base, but if cut below the leaves the operation must be deferred till the autumn.

Names of Plants (E. M. C., Limerick).—All plants that have been received at this office have been attended, but we do not remember any specimens with your name attached. (E. Moore).—The Daffodil is the double yellow variety of *Narcissus incomparabilis*, known as Butter and Eggs. (J. F.).—2, *Saxifraga oppositifolia*; 4, *Trollius europæus*; 6, *Caltha palustris flore-pleno* (double Marsh Marigold); 7, *Ranunculus aconitifolius flore-pleno* (Fair Maid of France); 8, *Ajuga reptans*. The other specimens were insufficient for recognition. (W. S.).—1, *Davallia divaricata*; 2, *Asplenium flabellifolium*. (D. H.).—Specimen much withered, but apparently it is *Scilla bifolia alba*. (L. C. H. R.).—A very poor specimen, resembling *Dondia Epipactis*.

COVENT GARDEN MARKET.—MAY 7TH.

TRADE somewhat better, but prices seriously affected all round.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	to 5 0	Oranges 100	6 0	to 10 0
Chestnuts bushel	10 0	0 0	Peaches per doz.	6 0	12 0
Figs dozen	0 0	0 0	Pears, kitchen .. dozen	1 0	1 6
Filberts lb.	0 0	0 0	„ dessert .. dozen	1 0	5 0
Cobs per lb.	1 3	1 6	Pine Apples English .. lb.	2 0	3 0
Grapes lb.	3 0	5 0	Strawberries .. lb.	2 0	6 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	0 9	to 1 6
Beans, Kidney .. lb.	1 0	1 6	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 0
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	0 0	0 0	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capsicums 100	1 6	2 0	„ Kidney .. cwt.	4 0	5 0
Carrots bunch	0 3	0 4	„ New lb.	0 4	0 0
Canliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsify bundle	1 0	0 6
Coleworts doz. bunches	2 0	4 0	Scorzoneria bundle	1 6	0 6
Cucumbers each	0 3	0 6	Seakale basket	1 0	1 0
Endive dozen	1 0	2 0	Shallots lb.	0 3	0 6
Herbs bunch	0 2	0 0	Spinach bushel	2 6	3 6
Leeks bunch	0 3	0 4	Tomatoes lb.	2 0	3 0
Lettuce dozen	1 1	1 6	Turnips bunch	0 3	0 0



THE SHROPSHIRE BREED OF SHEEP.

WE have always felt great interest in this breed of sheep, and it is with great pleasure that we enter upon the consideration of their origin and progress. Although these were originally a horned race, yet they were black in the face, which circumstance has greatly facilitated the introduction to our notice and for the use of the home farmer of a type of stock with a great similarity to the South Downs in the hands of some breeders; in others, however, they much resemble the Hampshire Downs.

As the origin of this breed was for many years a disputed question we are bound to allude to it. Some writers who assert that the original Shropshire Down sheep were a pure original breed, and this is no doubt correct, but it must be remembered that they were a horned breed with black faces; whilst other authorities, acknowledging their excellent style and character, they cannot allow them to be a pure breed. Our opinion is they are not a pure breed but cross-breed, and our information goes to show that they were obtained from the original Longmynd or old Shropshire sheep. Plymley in his "General View of the Agriculture of Shropshire," published in 1803, says, "There is a breed on the Longmynd with horns and black faces that seems an indigenous sort. They are nimble, hardy, and weigh near 10 lbs. per quarter when fatted. Their fleeces upon an average may weigh 2½ lbs. The farmers of the hill country seem to think the greatest advantage they derive from the access of foreign stock is from the cross of the South Down with the Longmynd sheep. The produce they state to be as hardy and to bite as close as the Longmynd sheep, and the weight of the carcase is increased." This seems good evidence as to the original characteristics of the old Shropshire stock, and it is also undoubted evidence that between sixty and seventy years ago this cross with the South Down and the Longmynd was a favourite. That this practice was continued for a considerable number of years cannot be doubted, for it was well known that first-class flocks of pure South Downs were kept in Corve Dale, and annual ram sales were held for many years until they were gradually superseded by the improved Shropshire Down, as many first-class breeders of Shropshire Down sheep resided at Corve Dale.

We have quoted evidence relating to the breed of sheep in the district of Corve Dale, yet we have important information relating to the breed from different parties in the district of Morfe Common. At a meeting of a farmers' club held in the county Mr. T. Meire some years ago observed, "It is not attempted to deny that the Shropshire is a cross-bred sheep. The original breed was horned, and the first attempt at improvement was to get rid of these incumbrances, and there is no doubt that this was effected by a cross of the Southdown." Again, Professor Wilson's report of the breeds of sheep in the Journal of the Royal Agricultural Society, vol. xvi., states, "On Morfe Common near Bridgnorth, which contains about 600,000 acres, there are about 10,000 sheep kept during the summer months, which produce wool of a superior quality. They are considered a native breed—are black-faced or brown, or a spotted-faced horned sheep, little subject either to rot or scab—weighing, the wethers from 9 to 11 lbs. per quarter after being fed with Clover and Turnips, and clipping nearly 2 lbs. per fleece, exclusive of the inferior portions, which may be taken at one-seventh of the whole."

Probably each of these districts in reference to which we have quoted contributed largely to the original stock as the agriculture of the county advanced, and the breeds became more valuable for their mutton as well as for their wool. It is well known the Morfe Common sheep were crossed with other breeds than the South Down, but more particularly with the long-woolled Leicesters and Cotswolds. The admixture of such different blood produced a corresponding variation in the character at that time of the breed of Shropshire Downs, and had tended very much to sustain the hesitation which existed until 1859 to allow them a place or class as a distinct breed at the meetings of the Royal Agricultural Society of England previous to the meeting held at Warwick in that year.

Few have enjoyed better opportunities of estimating the quality and characteristics of this breed of sheep than ourselves, by having performed the office as one of the three Judges of short-woolled sheep appointed at four separate meetings of the Royal Agricultural Society of England—viz., at Salisbury in

1857, at Chester in 1858, at Warwick in 1859, and again at the Great International meeting in Battersea Park, London, in 1862. Being thus engaged, it gave us an opportunity of noticing the character, not only of the Shropshires, but their comparative qualities with other sheep; for at the meetings at Salisbury and Chester a large number of different breeds of sheep were classed together in the competition, on which occasions the Hampshire Downs carried everything before them, for the new style and type raised by Mr. Humphrys of Oak Ash, Chaddleworth, Berks, were the wonder and admiration of all practical judges. In the succeeding year, however, at Warwick, when the Shropshires had a class to themselves, a great effort was made by their breeders and patrons. In confirmation of the rising popularity of this breed we may mention that they were supported by influential breeders at a distance—viz., in Staffordshire by Messrs. Masfen, Coxon, Hon. R. Curson, and Major Dyott; in Gloucestershire by E. Holland, Esq., M.P.; in Worcestershire by W. O. Foster, Esq., M.P.; in Warwickshire by Mr. T. Horley and Mrs. Baker; in Leicestershire by Mr. Pilgrim; and by Col. Pennant in North Wales. On reference to the entries at Gloucester (their first great start), Chester, and Warwick, we find them steadily progressing in number exhibited. At Gloucester the numbered 121, at Chester 184, at Warwick 192. In support of these remarks we now refer to the numerous entries for the local prizes offered for this class of sheep. The shearling rams numbered forty-three specimens, aged rams twenty-two, and twelve pens of five each of shearling ewes. The Judges especially noticed seven of the shearling rams, and generally recommended the aged ram and shearling ewe classes.

Previous to their being recognised as an established breed they were frequently noticed favourably by the Judges, although they were exhibited in the short-woolled class where all the best varieties were included. But at the Salisbury meeting the Hampshire made a great show, and also at Chester: the Oxfords, too, attracted attention. Nothing, however, brings out in full and perfect view animals when contending with each other being each of the same breed of a settled and established type; in fact it is a very difficult task for any judges to undertake to award prizes in classes where the numbers are great, for we have had as many as seventy-two shearling rams, including all the various types of short-woolled sheep, in competition in one class. Judges of great experience may sometimes lean to their better knowledge of certain breeds, or also to their peculiar and individual preference for particular types and style of stock.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The seeding and preparation for Lent corn having been now finished, the preparation for root crops, commencing with Mangolds, should now be forwarded as much as possible, not losing a day after the land is ready for drilling the seed. This, however, if the weather continues dry, may be anticipated by soaking the seed in water for two days immediately before drilling. It is now too late and too much loss of time to apply yard or town manure and ploughing it under, but to save time we prefer to anticipate and arrange for the application of artificial manures some good ammoniacal manure, such as guano, about 3 cwt., or 3 cwt. of bone superphosphate per acre, will be enough to use by drilling with the seed. If the land is not equal to producing a full bulk and weight per acre of bulbs nitrate of soda may be applied by hand just before the first and second horse-hoeings or hand-hoeings. About 1½ cwt. at each horse-hoeing will push the growth forward very fast, and generally prove equal to a heavy weight per acre of bulbs. Still, however, bear in mind that if we should happen to apply more manure than the Mangold crop requires, that the residue will be a good investment towards the production of a Wheat or Lent corn crop which may follow. Carrots often answer very well as a mixed crop with early Swedes. The seed after being rubbed free of the burr or husk will drill readily in mixture with Swede seed, and recommend this mixed culture because Carrot plants in their second leaf when grown alone are so small that they are easily overpowered and destroyed by the weeds. When drilled with the Swedes the last week in May or first week in June the young plants may be left without thinning when the Swedes are hand-hoed the first time, while at the second hand-hoeing the Carrot plants may be set out or hand-pulled to distance without being so liable to be destroyed by the brown grub. In case of the Carrots being sown alone it should be upon stretches 16 inches apart, and we have found the garden hand-drill answer well for the purpose; but when the horse-hoeing has been done then hand-hoe the young plants to free them from weeds in the lines, but on no account to set them out at proper distance for a crop. Allow them to grow thickly in the rows until the Carrots for the most part are about the size of a man's finger; they may then be hand-pulled for sale or use in feeding horses or cattle, leaving just enough for a crop, so that when in full size the bulbs may nearly touch each other. We are now alluding to the short red intermediate variety of Carrot, for these are good for lambs or any sheep stock, and will also sell readily in towns for vegetable consumption, and also for horse-feeding. Many gentlemen set great value upon them as food for their carriage horses in the winter months, and they are certainly far better than any other roots for that purpose.

When the roots are hand-pulled in or about the beginning of August for thinning we have frequently obtained 14 tons per acre this way as food for any kind of cattle in the boxes or for horses; and by this system the labour is not so great as with the deep-rooting sorts, either for pulling when young or when lifting the main crop. There is, however, a great advantage in hand-pulling, because the food for cattle pays the labour; and as soon as the thinning has been done the remainder swell and grow a large size very quickly, and the crop is then quite safe from injury by the grub. We have, however, lost the whole crop by grub when the plants were set out whilst the roots were young and small. If the weather continues dry generally all the lands seeded, whether with grass seeds, Lent corn, or Mangolds, when rolled the last time, the land being rather coarse or rubbly—that is, not fine, but the clods being reduced to a small size, they, nevertheless, allow drought to enter and delay the vegetation and growth of any small seeds. To obviate this let the last rolling be done with the ring roller, and, if necessary, two different ways. This will press the surface and shut out the drought, whereas a smooth roller does not answer such a good purpose when the surface clods are hard and tough.

Hand Labour.—Dung-carting from the yard or heap will now be going on if applied to Mangold, Cabbage, or other root crops, because the dung deteriorates very much unless laid out when made or as soon after as required for use. The men will be engaged in filling and spreading the dung. It is a good time now to turn heaps of earth and dung as compost for laying on the pastures as fast as the hay crop is cleared off. If the weather is rainy find work for men and women too, the men mixing and preparing artificial manures in the manure store, and the women rubbing and preparing Carrot seed, &c., for drilling. Planting Cabbages should now be done, and our plan of doing it bids defiance to dry weather, because the men use light spades introduced at an angle of 45°, the women following, inserting the plants at the back of the spade, and boys to fetch plants. In this way the roots of the plants are buried deep in the soil, where they find moisture to sustain them, without dry dust from the surface running in, like it does when planting with the setting stick; in this way we have never known the plants to die in the driest of weather.

Live Stock.—On the vale farms, where it is customary to purchase sheep in the autumn for consuming the roots grown on the farm, we foresee that this system must be altered in anticipation of a foreign supply of frozen meat from our colonies, &c.; and the breeders on the hill farms are sure to have their profit on breeding if any, whereas the feeders on the vale farms will not be able to make feeding for mutton answer their purpose. We therefore advise them to turn breeders as well as feeders, and keep a summer stock of ewes suitable to the land. The early lambing Dorsets and Somerset horned ewes answer well in some dry soils; early Dorset Downs on some farms for the feeding of early lambs to fall at Christmas. Later stock, such as the Oxford or Shropshire Downs, will answer upon some of the midland districts, for they year a large increase of lambs; and if the ewes are bought poor in the spring or just after shearing-time, they can be run with the rams to great advantage, as so many can be kept in the summer and autumn and folded on the arable land. We find that they gradually improve in condition in this way, and become better stock than we can buy at the autumnal fairs except at a price leaving little or nothing as profit. With respect to horned cattle, if we can only get the country free of foot-and-mouth disease, the farmers who require cattle for winter feeding should breed them. We will refer to this matter another time.

OUR LETTER BOX.

Drag for Land (Trike).—In reply to your inquiry as to our recommendation of an implement which ought entirely to supersede the old wooden-framed drag, we name Howard's improved self-lifting drag harrow as the most effective implement yet invented, inasmuch as it can be raised out of work by the power of the horses. We advise you to apply to Howards of Bedford for an illustration and price of this implement if they have no agent in your district. The very curious instance of a cat rearing a young Rabbit shall be handed to the Editor of *Poultry*, as suitable for insertion in that paper.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Baromet- ter at 32½ and Sea Level	Hygromet- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1884. April and May.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	In.
Sunday 27	29.689	45.2	42.0	N.E.	44.7	49.8	34.8	58.0	31.9	0.198
Monday 28	29.737	43.5	42.4	N.E.	44.3	50.0	36.4	60.7	32.3	—
Tuesday 29	29.803	42.9	41.9	N.	43.8	59.3	32.4	83.0	27.7	—
Wednesday 30	29.777	51.0	46.9	W.	43.9	59.5	36.3	95.7	31.2	0.017
Thursday 1	29.926	50.5	45.5	W.	44.3	56.3	35.0	84.0	31.3	0.087
Friday 2	29.787	51.8	45.2	W.	45.1	57.4	45.1	89.7	41.3	0.132
Saturday 3	29.424	51.0	49.3	S.W.	46.6	59.3	50.4	104.6	49.4	0.055
	29.738	48.0	44.7		44.7	55.9	38.6	82.2	35.0	0.489

REMARKS

27th.—Cold and showery till 6.30 P.M., fair after.
28th.—Fog in the morning (dense in the City), fair later.
29th.—Fog in morning and again after 3 P.M.
30th.—Foggy early, afterwards fine with bright sun.
1st.—Fair; sprinkle of rain at 5 P.M.; windy evening; rain from 8.30 P.M. till midnight.
2nd.—Dull; rain from about 4 to 6 P.M.
3rd.—Heavy rain at 8.50 A.M., and slight showers up to 6 P.M.; fine evening.
Temperature rather higher than in the previous week, and still below the average
There has been frost on the grass on four days of this week.—G. J. SYMONS.



15	TH	Royal Society at 4.30 P.M. Reading Show.
16	F	
17	S	
18	SUN	ROGATION SUNDAY.
19	M	
20	TU	
21	W	Royal Botanic Society's Show.

SUMMER NOTES ON THE VINE.

THE present is an important time in vineries. Early Grapes are developing fast, and late Vines are now producing their shoots and giving their cultivators daily pleasure in watching for the bunches and comparing them with previous crops. It is always gratifying to find one bunch or more on each shoot, and when this is the case a crop may be relied on, but when several shoots develop without a bunch it is most unsatisfactory. This sometimes happens with amateur and professional growers in the case of certain varieties. Duke of Buccleuch and Gros Guillaume are frequently shy formers of bunches, and when very closely pruned many of the shoots come bunchless; but a certain remedy for this is to prune on the long-spur system and allow from 6 inches to 1 foot of the shoots to remain at pruning time. It will then be found that many bunches are produced, especially near the end of the old wood where the buds were more prominent and better ripened than close to the main stem. When the shoots are left as long as we have just indicated many more young growths will appear at this time than there is space for, or, indeed, than are required, and those not wanted should be broken away at the union with the old wood. This should never be delayed, and only the best shoots with the finest bunches must be allowed to remain. Very weak Vines should never be closely pruned, as this invariably causes them to be shy in forming bunches. Vines, too, recently lifted, transplanted, or disturbed at the root in any way are often shy in fruiting, and close pruning should not be practised in their case, but they should be encouraged to produce strong yet sturdy laterals.

Disbudding must have constant attention, and this is seasonable work at the present time. When we have had Vines with long spurs we have often allowed the shoot which pushed at the extreme end to remain as the fruit-bearer, and the one nearest the old stem was stopped when 4 inches or 5 inches in length; which caused it to thicken and make good wood for bearing fruit the following season. This is also a good way of keeping the spurs within bounds. Superfluous Vine shoots should never be cut off, as this causes more leaves to be formed behind the cut and more superfluous matter will be produced, which is no benefit to the Vine, but, on the contrary, injurious.

In all cases where shoots have to be taken away, they should be wrenched off with a sudden but gentle jerk from the base, and they will come away without the slightest injury to the Vine. Allowing too many shoots and leaves to remain is a great mistake, not by any means uncommon. They retard development of wood and fruit, and injure the Vines for the following year. That should always be kept in view, and when the foliage is crowded throughout the growing season and the superfluous growths are only thinned out late in the autumn in the hope of atoning for past neglect nothing but disappointment can follow, for by such means healthy Vines and superior Grapes cannot be produced.

Small spindly bunches, which have an uncertain appearance as to whether they will form berries or not, and end by producing a few large ones and a great many small ones, prove very conclusively their dislike to overcrowding, as light and air will always insure a uniformity in the berries, especially in late Grapes, at this season. From this it will be understood we do not advise allowing all the shoots to grow until the berries have been formed in order to see which are the most perfect, but we strongly recommend many of the weakest and all which it is quite evident will never be wanted to be taken away before they have developed. At present we have several one-year rods of Alicante, Gros Colman, and Golden Queen starting into growth. They are about 12 feet long each, and there are two shoots coming from almost every eye. One of these is strong, the other much weaker, and the latter is rubbed off before it is 3 inches long. This must throw strength into the other, and it certainly avoids crowding, which is, perhaps, the greatest of all evils in Grape culture.

Not very long ago it was a common practice to plant Vines at the beginning of the year, allowing the rods to extend to the top of the house. They were cut down to 2 or 3 feet from the bottom the following winter, and taken up again the second summer, again cut back the second winter; a few bunches were taken from them the third year, and a light crop the fourth, then followed a full one. Such work now-a-days is out of date, and rods 10 feet and 12 feet long are made to bear a bunch to every foot or so before they are well over their first birthday, and hundreds of growers are annually proving this to be satisfactory practice. This "system" is in my mind always associated with the late Mr. Pearson of Chilwell, who conducted many successful experiments in his extensive vineries near Nottingham long before the present Grape-growers commenced their experiments.

only be manner fruiting long young rods, however, can the can done successfully by paying the utmost attention to trainedes when they are being formed. They require to be shadin so far apart from each other that there will be no Youngg or obstruction of the light from the main stems. Young canes always emit many side growths, and these if allowed to grow will soon form a mass of twigs and leaves, and prove injurious to everything under them, but if these are stopped two joints from the main stem the best results will follow. Some growers dislike to stop the leaders in the case of young Vines, but allow them to extend even to hanging down the back wall of the vinery, reaching quite to the path and even trailing over the surface of the border. Never having appreciated the advantage of such liberal treatment we stop our young rods as soon as the top of the house has been reached, and they are never allowed to go farther. When stopped in this way they become very much thicker on the part which will bear the fruit than they would do if allowed to grow unchecked, and we think stoutness of cane and boldness of buds go for something.

The majority of Vines are making a great quantity of young wood just now, and all should be examined once weekly at least to regulate and restrict the shoots. The danger is always in allowing too much wood to be formed and too many leaves to shade the growths which will produce the fruit next year. The rays of the sun should penetrate between the leaves of all Vines and shine right into the interior of the house. Nothing will make the Vines more robust, healthy, and fruitful than this. As neglecting to thin and regulate the wood and leaves are hurtful to the Vine, so is neglecting to thin the berries injurious to the bunches. They should always be thinned before they have become a firm mass, and this they will very quickly do at this season. Those who do not feel confident in thinning them should go over them all twice, removing a few the first time, and as they become larger and it is seen that they are going to swell well more should be taken away.

As regards watering, no fruit-bearing plant requires so much as the Vine. If the borders are well drained it is almost impossible to give them too much, and in any case the roots should constantly be in a moist condition as long as the wood and fruit are developing and the leaves are green.—A KITCHEN GARDENER.

HARDWOODED GREENHOUSE PLANTS.

THE excellent article by Mr. Bardney on winter-flowering Ericas in the *Journal* of April 17th suggests further consideration and discussion of the extremely handsome class of Australian, or what were once called New Holland plants, that require in many respects treatment similar to the Ericas, and, like them, appear to be sadly neglected in private gardens. As the present is probably the most suitable time for cutting back or repotting many of the winter and spring-flowering species, a better could not be chosen for bringing a selection before your readers, together with some remarks on their cultivation. It is to be hoped that others will contribute information which may induce new cultivators to start, if only with a few healthy plants, and advise those who have not hitherto succeeded satisfactorily to buy again. If they will give careful attention to potting and watering success will probably be attained, and they will be assisting to again popularise such valuable plants for greenhouse and conservatory decoration.

Many are well adapted for culture in small pots, and although perhaps the majority flower in spring when there are plenty of other plants available for decoration, yet for beauty and interest hardwooded plants seem to stand out conspicuously, and to have an advantage over their softwooded associates. Not a few are, moreover, profuse bloomers, and are invaluable for cutting. Probably the greater ease with which softwooded plants are grown, and the extra attention given in raising new and improved forms of late years, have caused the great neglect of the other class, or it may be their merits are not sufficiently well known. Certainly there is but little demand for the latter at present, and some nurserymen seem almost to have discontinued their propagation.

The flowering season may be prolonged over a lengthened period by growing different genera and species that succeed each other. Thus Acacias, Diosmas, Eriostemons, Boronia megastigma and B. tetrandra, Tetratheca hirsuta, and Adenandra fragrans flower in winter and early spring. Epacris microphylla, a beautiful compact species with pure white flowers; Aotus gracillima, a slender-growing shrub thickly set with brown and gold-coloured flowers, extremely pretty; Pimelea elegans, Polygala Dalmaisiana, Hibbertia Reedii, Oxylobium ellipticum, Boronia elatior, and B. polygalifolia are in good condition just now, or in some cases just past their best. Succeeding these are Pimelea decussata and Dillwynia ericoides, which are just opening their buds. Bauera rubioides, Muraltia Heisteria, Grevillea Thelemanniana, and Tetratheca verticillata may be said to continue in flower as long as the plants are growing.

The whole of these, and many others of a similar nature, require the most careful attention in the selection of soil, in potting, and watering. Fibrous peat, neither boggy nor spongy, with sharp silver sand are required for all. In addition we used some loam last year, particularly for the Acacias, and having considered it advantageous have again used some this year. Most of the plants named above require cutting over much in the same way as Heaths, and the period when this is done is the most critical in the year with them. They should be kept close when at this stage, but if possible free from fire heat, provided the day temperature does not fall below 45° or the night 5° less. Slight syringings and supplying very little water at the roots is apparently the best plan to induce them to break, and after this repotting should be at once proceeded with. Those in bad health must have the old soil removed and the plants placed into smaller pots, while those healthy and having good roots should have a moderate shift. Pots 2 inches larger are in most cases sufficient, the balls of roots being retained almost intact if in good condition, but reduced if otherwise and returned to proportionate sizes. Pot firmly without burying the stems, again place the plants in the same quarters, and slightly shade them from bright sunshine. They will not require water at the roots for nearly a week, but should be kept close and syringed once or twice daily until established, when air may be gradually admitted.

We prefer shading from bright sunshine with thin material during the summer to prevent the roots being scorched. It is, however, important that it should be discontinued as soon as the hottest weather is over, and full exposure to sun with plenty of air given during the autumn. Without thoroughly ripened growth in this, as in so many other cases, free flowering cannot be insured. Rain water is much preferable for watering, as it is free from lime. This ingredient is a very destructive one to any hardwooded plant of the

class under notice. Where rain water cannot be obtained, and other has to be used, it should be exposed for some time to the sun and air, or have a small bag of soot placed in the vessel, which greatly assists in softening it. Nearly all the water in at least the southern parts of England has a certain portion of lime dissolved in it. Perhaps that from the pipes of the water companies in and around London is the worst for watering plants.

I should advise comparative restriction in the size of pots used. Hardwooded plants have very small roots, and they generally keep much healthier if they are somewhat restricted. Many form useful little plants and flower freely in 60 and 48-sized pots. Acacia lineata, A. armata, A. longifolia, and probably the best of all, Acacia Drummondii, are admirably adapted for flowering in these sizes. In addition to those plants already enumerated I would strongly recommend the following as being worthy of attention and cultivation. Goodia lotifolia, free-growing and very floriferous; Hedaroma tulipifera, H. fimbriata, Eutaxia myrtifolia, and Dracophyllum gracile.

Figures and descriptions of many of the above-named plants appeared in the *Journal of Horticulture* last year. Nearly all of them are natives of Australia and New Zealand, but some are from the Cape of Good Hope.—J. G.

CARROTS AND THE CARROT MAGGOT.

A CURIOUS fact regarding this came under my notice last year in a garden where the maggot annually destroys every Carrot with the exception of the Early Horn varieties, which are generally used before that dread insect has had time to attack them. All the Carrots comprising the main crop (and they were sown in different parts of the garden) were completely destroyed in a very short time, and that immediately after they were thinned, the roots at the time being about the thickness of a man's finger. On the first appearance of the enemy the ground was heavily dressed with soot, but this evidently had no effect, as the ravages were continued until the whole crop was destroyed with the exception of the ends of two or three rows which had inadvertently been left unthinned. The treatment given to the whole crop was similar in every detail except that these few ends were left unthinned; and strange as it may seem, these were left quite uninjured, while the others were entirely destroyed. What reasons can be assigned for this I cannot say, but would it not be worth while leaving a few unthinned until strong enough to resist the attacks of such a dire enemy? Have any readers of the *Journal* had similar experience?—CALEDONIAN.

"BIG" ROSES.

"HAVE you seen Her Majesty? No? Well, go at once to the far end of the tent. It is a most wonderful Rose." These words were addressed to me by an intensely excited friend on the 4th of July last year, just as I had finished my part in the judging at the National Rose Society's South Kensington Show. I followed my friend to the stand of cut Roses presided over by that successful raiser Mr. Bennett of Shepperton. Certainly, I was able to endorse my friend's opinion, for Her Majesty, as shown then and there, was a most wonderful Rose. Yes, a wonderful production, but to my mind a splendid monstrosity. The worth of many of Mr. Bennett's pedigree Roses no true rosarian would now dispute, and the singular beauty and refinement of some of them is in so great a contrast to Her Majesty that I, for one, can only believe that the raiser looks upon this one as a monstrous curiosity, and Mr. Bennett is so true a rosarian that he will not allow "his latest" to be distributed in this country, thinking her more suitable for England's big daughter on the other side of the Atlantic!

But my object in writing to the *Journal of Horticulture* is not to denounce this marvellous production, for it will be useful for walls, but to enter my feeble protest against this modern rage for size in Roses. The ladies do not like these "big 'uns," and surely their taste is not to be gainsaid. I heard many and many a remark last summer at the different shows, such as, "What a big coarse thing! I don't like it at all." Mr. Cant's Souvenir d'Elise was denounced by hundreds; and though it was not quite so large a bloom as the one of the same variety which occupied the premier position the year before, yet it lacked the colour and finish of the 1882 flower. To my mind, we are making a great mistake in this craving for size. Take up the ordinary nurseryman's catalogue, and in the descriptions of some of our most beautiful Roses is added in each case a sort of apology for a deformity (?). Mons. E. Y. Teas, Mrs. Laxton, Duchess of Bedford, Duke of Teck, Madame Noman have one and all heard the nurserymen's wail of regret, "Ah, how perfect you would be if only you would grow and get fat!" And yet I firmly believe that 75 per cent. of exhibitors of the queen of flowers, had they not been coached into this craze for size by the bad example of successful exhibitors, would in their hearts prefer the form and beauty of some of the above-mentioned

varieties to the size and awkwardness and "flotheriness" of some modern favourites. I do hope some of our nurserymen will this summer do what Mr. Cranston boldly did at the first Sheffield National Show. He put up Madame Noman for twelve of any light Rose, and was first; and yet he told me afterwards that he thought the Judges must have lost their heads (and hearts too) over the pretty things. But, I ask, are we to give all our prizes to Flemish cart horses, and reserve none for the graceful thoroughbreds, not to speak of the taking elegant little pony?

And what about Teas? I remember two or three years ago Mr. Prince, on seeing a huge but well-formed Anna Ollivier in my stand, saying, "You gentlemen make a mistake in going in for large Teas; you thereby spoil your stands." And, without wishing to detract from the excellence of the Teas as shown at South Kensington last July, yet I failed to see enough of the loveliness and—what should be—the sweet innocent look of *Rosa indica odorata*. We saw too much of the fully developed matron (and grand she was), but in some stands you looked in vain for "sweet and twenty." The question that troubles me is this: Are we really improving the form of the Rose if Her Majesty is to be the ideal type? I think not, and though many exhibitors and the trade will not agree with me, yet I shall have the support of the discriminating mass of the lovers of our favourite flower.

Mr. George Paul, in his catalogue, speaks of one of his Cheshunt-raised Roses as "not large, but a neat front-row flower." I presume that Her Majesty would go to the back row, but I shall be curious to see how she holds her position even there.—J. A. W., Alderminster.

SPECIAL SOCIETIES.

AT page 344 of your issue of the 1st inst. your correspondent, "D., Deal," tells a story transparently intended to reflect both upon my pecuniary position and personal character. He says:—"Some time before Mr. Dodwell removed to Oxford I gathered from him that he was in much trouble and anxiety owing to pecuniary losses and a threatened action for libel. Some days after, in thinking over our conversation, it suggested itself to me that it would be a graceful and acceptable thing to present him with a testimonial on the ground of the benefits he had conferred on floriculture; but feeling that I was not a sufficiently old friend to put myself at the head of it, I wrote to Mr. Charles Turner, who cordially approved of it, and warmly took it up."

I protest against this dragging of matters purely personal before the public. It is as destructive to honourable journalism as it is of individual right. I seek no immunity from criticism or censure, whatever its severity, which the performance of public duty may call, or seem to call for; but I protest against the degradation of controversy by attempted reflections on character and position; and I protest on public grounds, for these shameful things do not touch me to my hurt, whatever they may do to your correspondent.

As to the facts. The story of the conversation told by your correspondent is an absolute myth. He never was a confidant of my private affairs, and I never at any time made reference to them either in conversation or by letter, save as a consolatory rejoinder to some complaint of his. It is true that by the bad faith of a business connection I did lose virtually the fruits of the labour of my life; it is true also that for daring to vindicate my good name, as one of the incidents of my misfortune, I was threatened with proceedings for libel, but the matter ended in threats, and the evil inflicted upon me recoiled with ruinous severity upon the wrong doers. But this occurred in July, 1878, and, as I was informed, no mention was heard of any offering to me until after my announced departure from Clapham in September, 1881. Your correspondent's description of that offering also materially differs from that given me by others, but this is of small account. What is of account, of paramount account in my judgment, is, that he should be allowed to exercise his habit of attacking men or things under disguises more or less misleading to the uninstructed, in your columns, and whatever the subject, dragging in elements which envenom but never enlighten the controversy. What answer is his story of my pecuniary losses to the charge of my being a nurseryman, which he says I assume he made against me under the signature of "Fair Play?" Let him come into the open, and there shall be no question of evidence, and I shall have no hard words for opinions however adverse, openly expressed, and clearly the result of conviction, however mistaken; but as long as I can hold a pen or speak a word I will not cease to denounce anonymous detraction.—E. S. DODWELL, Oxford.

[We print Mr. Dodwell's letter verbatim, with the observation that his floral dynamite is harmless, and hence his references to ourselves, whatever may be his object, have no effect whatever. We have received a letter from "E. R. N.," founded on the false assumption that "D., Deal," committed a breach of faith in his communication on the page referred to. This Mr. Dodwell emphatically disproves in the words—"he, ('D., Deal,') never was a confidant of my private affairs." Mr. Dodwell frankly and openly made his friends acquainted with his circumstances. He made no secret of them in conversation, and

he received, as he knows, sympathy from ourselves and from others. After the publication of Mr. Dodwell's speech delivered at the Auricula Show, and a still more trenchant circular in reference to him, "D., Deal," felt himself compelled to show that, instead of being animated by personal enmity towards Mr. Dodwell, he had acted as a friend in disguise. "An Amateur" has also written to us under the mistaken view that "D., Deal," was Mr. Dodwell's confidant, and concludes—"If your correspondent 'D., Deal,' wishes to promote the interests of floriculture, he can easily do so. No better proof of his ability in this respect could be afforded than his able and interesting review of the late Auricula Show in your last number. In this way he is amply qualified to give us pleasure and instruction, but emanations like that at page 344 are only calculated to give pain to everybody."

Mr. Dodwell has fired his shot and ought to be satisfied. Whether he is or not, we cannot allow any more to be said on this purely personal matter, which has grown out of a very proper discussion connected with special societies. On this subject we shall be pleased still to offer space to those who wish to continue it, but we firmly decline to give publicity to any mere personalities. It is on this account that letters from three other correspondents are not inserted, two of which disapprove of Mr. Dodwell's action, and one sustaining it. Letters that are not suitable for insertion in the columns of the press can be printed and circulated through the post.]

WULFENIA CARINTHIACA.

OF the numerous alpine plants now at the disposal of the lover of these floral gems there are not many possessing greater claim to atten-



Fig. 89.—*Wulfenia carinthiaca*.

tion than this beautiful little plant. To some of our readers the *Wulfenia carinthiaca* is probably an "old familiar face;" but it is much less extensively grown than might, perhaps, be inferred from the mere date of its introduction. In the front ranks of the mixed border its spikes of bright blue flowers produce a charming effect, especially when grown, as it may be, in a good patch, or if several plants of it are grouped together. It may be termed a spring flower, for it usually commences blossoming in May and continues in bloom until July.

The *Wulfenia carinthiaca* is a perennial plant of dwarf habit, its foliage, which is all radical, not exceeding 6 inches; the flower scapes, however, often grow to the height of from 12 to 16 inches or more before the blossoms are all expanded. The leaves are ovate, blunt, with doubly crenate margins, and when full grown are spread flat on the ground; the small leaflets attached to the flower scape are more acute and sessile, with their margins rolled back.

The spike of flowers is at first drooping, but afterwards becomes nearly erect, though there is generally a slight inclination to one side. The flowers are bright blue, with a yellow throat, on short peduncles, closely arranged, and are somewhat remarkable for their oblique position.

From the character of its natural habitat it will be readily inferred that the *Wulfenia* is an excellent rock plant, but it will not endure full

exposure to sunshine, neither will it flourish if allowed to suffer from drought; a partially shaded situation should therefore be allotted to it. In the border it will succeed in any light rich soil free from stagnant moisture, which is injurious to it, especially in winter. In severe weather it should be covered with an empty flower pot, and in long-continued rains in winter the same precaution may be adopted with great advantage. In unfavourable localities it may even be advisable to pot it in autumn, and preserve it through the winter in a cold frame or turf pit, though this precaution will hardly be necessary south of the Trent. It may be increased by division in spring and autumn, and also by seeds, which it sometimes ripens. If a few of these are saved annually its protection will then be a matter of less importance, as young plants are readily raised from seed.—W. T.

GRAPE THINNING.

THIS is a subject about which it is difficult, if not impossible, to give precise directions, so much depends on the variety to be thinned and the degree of vigour in the Vine, but a few hints may be useful to beginners. A good set is of the greatest importance, as badly set bunches can rarely be thinned regularly. The time for thinning varies considerably. The Black Hamburgh may safely be done when the berries are of the size of Radish seeds, some others cannot safely receive their final thinning until the stoning is completed. Take a well-set bunch of Black Hamburgh as an example. The first thing to be done is to tie out the shoulders, which should be done more carefully than is often the case. Nearly a year ago I noticed in a large garden some fine bunches of Grapes which were completely spoiled by the careless way in which the shoulders had been managed. Instead of three ties to each shoulder there was only one, consequently the outer berries were hanging down, resting upon those below them, instead of being held clear by two or three neatly twisted pieces of matting. These bunches would have looked twice as large had the shoulders been well attended to. Moreover, allowing the berries to touch each other during the stoning period is a certain way of producing scald, and for this reason, if for no other, this matter should be carefully seen to. In some vineries the wires are not well placed for tying out the bunches, but a few laths split into suitable sizes and tied from wire to wire will remedy this defect.

Having carefully tied out all parts of the bunch requiring it, thinning may be commenced, it matters little whether from the top or bottom of the bunch. I generally begin at the bottom and work upwards. A piece of neatly twisted matting fastened round the stem near the bottom of the bunch is useful in moving the bunch about as may be required. All badly placed berries, especially those pointing inwards, may first be removed, and after that the condition of the Vines is the best guide. Vigorous Vines may be relied upon to produce large berries if freely thinned. I have been surprised at the size of the berries on a Vine of Lady Downe's, which from a peculiarity of the house always sets its fruit very badly. Thinning has much to do with the size of the bunch as well as the berry, careful thinning often making all the difference between good and undersized bunches. The berry at the extremity of the various parts of the bunch should always be left if possible, as their removal not only decreases the size of the bunch, but also robs it of part of its symmetry. It is difficult for beginners to thin Grapes with any degree of certainty without a year or two of acquaintance with the Vines producing them, and if they should require a second thinning let it be done as soon as possible after stoning, and very carefully, as the skin appears to be easily injured by any rough handling at this period.—T. A. B.

BORDER CARNATIONS FOR WINTER AND EARLY SPRING FLOWERING.

I HAVE never known these recommended for this purpose before, but they may prove very useful to some people, as the following facts will show.

A packet of mixed seed was purchased from a good firm at the end of September, 1882, and part of it was sown in boxes at once and placed in a gentle heat. As soon as the plants appeared they were gradually hardened off to enable them to stand through the winter in a cool house without any fire heat. Early in February, 1883, they were pricked out into other boxes, and when the season was far enough advanced were planted out in beds in the garden 15 inches apart. They grew freely, but did not produce any flowers during the summer. The autumn being a mild one, they commenced flowering in November, and at the end of that month several were taken up, and being large plants were placed in 9-inch pots and arranged for a time in a cool and moist house. As soon as they were well established they were removed to warmer quarters, where they had a minimum temperature of 45° to 50°. There they soon began to open their flowers, and have since yielded a large number. I counted over eighty blooms on one plant a short time ago in various stages of growth, and those left in the beds are now coming on fast, and promise a fine display of flowers soon.

Some may, perhaps, object to this system on account of some of the plants proving to be single varieties, and I may as well say only one has come single thus far, and it is not to be despised. I think if the seed is procured from a reliable source there need be no fear on this point.

Most probably the first week in October would be found the best time for lifting them.—W. H. DIVERS, *Burghley*.

DENDROBIUM DEVONIANUM.

AT one time this was considered a very difficult Dendrobe to manage, but I have always found it as easy to cultivate successfully as any other. Imported plants, after they arrive, often flower profusely from their long slender stems ripened in their native habitat, but to allow them to do this is a great mistake. Perhaps no Orchid is so much weakened by flowering as this, even when thoroughly established; but when first imported and flowered the stems are much shrivelled, and the growths the following season are weak compared with what they would be if the flowers were removed. This is not mere speculation, but has been practised repeatedly for the purpose of testing whether flowers exhaust the plants, and whether the previous year's pseudo-bulbs are of any service to the growths to be made the following year. Experience and observation therefore warrant me in recommending that the pseudo-bulbs be kept as fresh as possible, and the flowers removed from imported plants, or the growths will be poor.

This Dendrobe does best while growing in a rather close moist atmosphere where the night temperature ranges from 65° to 70°, with a rise by day of 10° or 15° from sun heat, or even 5° or 10° more when the house is closed in the afternoon. It does best in baskets suspended from the roof, and if allowed its growths will hang gracefully from the baskets; but here, while growing this plant is never allowed to assume its pendent habit, the stems being suspended as close under the glass as possible by means of matting. The reason I adopt this course is because I have found the growths possess greater solidity, ripen better, and in consequence flower more freely than when they are allowed to hang from the basket. Too much light cannot be given, yet the plants must while making their growth be shaded from direct sunshine.

D. Devonianum is not strong-rooting, and too much material about its roots is detrimental to success. It dislikes the soil used to become sour about its roots, and it should be renewed annually, the present being a good time. Employ for a compost three parts of sphagnum moss in a living state to one of peat fibre, with lumps of charcoal freely intermixed.

When the roots are advancing freely and the plant growing vigorously this Orchid will need more liberal supplies of water than any other Dendrobe with which I am acquainted, and if not applied and the plant liberally syringed it will soon become a prey to red spider, which quickly arrests its growth. The best preventive is a moist atmosphere, liberal syringing, and abundance of water at the roots. When this handsome Dendrobe is well grown it will make growths fully 4 feet in length, and if well ripened will flower freely for 3 feet of that length.

To show how freely and successfully it can be grown under the simple system detailed, it may be mentioned that a number of plants (imported) were purchased in February, 1883, for 3s. 6d. each. The majority started several growths, and each plant this spring has carried between 200 and 300 flowers.—W. B.

THE HERBACEOUS BORDER.

AT the early part of April the weather was bright and mild, but after the middle it was cold, and in the third and fourth week a keen north-east wind with sharp frosts at nights retarded, and to some extent injured, some plants either in their tender growths or their advanced bloom. Notwithstanding this some plants have flowered well during April, the most noticeable of which are still fine.

Iris nudicaulis.—The flowers of this plant are somewhat large, similar to a German Iris, the "standards" and "falls" being of a deep rich purple, the flowers being freely produced on a stem about 1 foot high, and with the foliage of a similar height have an effective appearance. It does well in ordinary soil.

Anemone stellata fulgens.—Too much cannot be said in praise of this scarlet Windflower. Its large dazzling flowers peeping above the ample foliage render it highly attractive, and it is one of the finest hardy plants for cutting in spring. It thrives in any ordinary soil, and once established takes care of itself, preferring a rich light soil well drained.

Anemone nemorosa bracteata plena.—This has the foliage of the Wood Anemone, and grows but a few inches high, the flowers white and double, with green bracts, the whole very interesting and pretty. This is best grown in light soil in a somewhat shady situation, but succeeds in the open border.

Dodecatheon Meadia.—The American Cowslip does well in any light soil somewhat moist but well drained, and its rosy-purple flowers, borne in umbels of a dozen or more each on a stem about a foot high, have an elegant appearance. There are numberless varieties with flowers varying in colour from white to crimson. All are hardy.

Corydalis nobilis.—This has handsome, spreading, much-divided, Fern-like foliage, the plant being very compact in habit, the flowers all borne on arching stems just clear of the foliage, the colour being a rich golden yellow with a black centre, giving the plant an attractive appearance, and in the ordinary border it grows rather more than a foot high, and certainly is one of the grandest of spring-flowering plants. In a moist soil, free, however, from stagnant water and somewhat shaded, it grows more robustly, but does not flower so freely or finely as in an ordinary border of light rich soil well drained. Where interesting plants are cherished this should find a home, as it certainly is the finest of the family.

Dielytra eximica.—One of the best of spring-flowering plants, its foliage and flowers alike are useful for cutting, its graceful flowered sprays being fine for vases. As a plant the pale green much-divided Fern-like foliage, and its racemes of pendent rosy-purple flowers, render it a charming border plant, doing well in any light soil well drained, and whilst *D. spectabilis* is cut off by the frost to the ground this is not injured at all either in foliage or flower. It grows about 12 to 18 inches high, and is spreading.

Saxifraga Wallacei.—A really good and useful plant. The large white flowers are borne in upright panicles, being useful for cutting. It grows about 12 inches high, and does well in an ordinary border of light soil. It should find a place in every garden, as it is so easily grown and so free-flowering and effective.

Mertensia virginica.—Very effective from its stems of 12 to 18 inches high, terminating with clusters of long tubular flowers of a deep purplish-blue, and although a moisture-loving plant it does well in an ordinary border if given some leaf soil or a peaty soil with slight shade.

Iberis gibraltarica.—A bush of this, 3 feet in diameter and 18 inches in height, clothed with large compact heads of white flowers tinged with red, is very effective. It is useful for cutting, as the plant commences flowering early and continues right through the summer. It is the largest and finest of the evergreen Candytufts, and requires a light soil well drained, and then is perfectly hardy, otherwise it requires a warm situation. It is readily increased by cuttings, so that a few plants can be kept in pots through the winter in protection to meet any casualties.

Centaurea montana alba.—The Perennial Cornflower, from the mildness of the winter, has grown all the winter, and was not injured to any extent by the frosts of April, during which it commenced flowering, being now over 2 feet high, and having numbers both of flowers and buds, which last for a very long time and are useful for cutting. It will grow anywhere in an open situation, but likes a light or well-drained soil, and by cutting away the old flower-stems will give a successional supply of flowers through the season.

Phlox Nelsoni.—In a light well-drained soil this is an effective border plant; its moss-like foliage decked with the snowy white flowers render it useful as a front row plant.

Adonis vernalis.—The large bright yellow flowers of this plant are very showy, and supply one of the best yellows in spring-flowering plants. It takes some little time to become established, and it is only as such that its merits become apparent. It only grows a few inches high, and does well in an ordinary border of light soil enriched with leaf soil. It ought to have a place in every garden, and in the mass is quite charming.

Gentiana verna.—The bright blue flowers of this are lovely, it requires a good loamy soil, which, however, must be well drained and never allowed to become dry. It does fairly well in the open border if kept well supplied with water in dry weather.

Caltha palustris flore-pleno.—The double Marsh Marigold is very showy from its large deep green glossy leaves and numerous large, double, golden-yellow flowers, and does exceedingly well on a north border or any situation, preferably a damp one, in good rich deep soil.

Narcissus poeticus ornatus.—This flowered freely during the month, and where cut flowers are in request ought to be grown in quantity. *N. biflorus* commenced flowering at the close of the month, and is very useful for cutting.—G. A.

HISTORICAL JOTTINGS ON VEGETABLES.

ARTICHOKES.

To many readers it might seem a very plausible explanation of the name "Artichoke," to say that the last syllable at least refers expressly to a portion of the head of the plant, by which, undoubtedly, even when it is boiled, an eater thereof might be choked; and we may, indeed, accept it as a fact that persons have been choked through an incautious attempt to swallow this, although we fail to recall the name of any individual which has been chronicled in connection with the circumstance. "Artichoke," however, is thought to have come to us by way of the French *artichaut*, and that some authorities derive from an Arabic word, *harchiaf*, variously spelt; and others believe it to be a perversion of the Greek *artytikos*—i.e., "fit for seasoning," which is applicable enough. And both Greeks and Romans showed a remarkable partiality for the Artichoke, which has a history that extends back to the century before the Christian Era, or farther still.

It is uncertain whether the countries which are the first mentioned by old authors as yielding Artichokes are really the natural localities of the species, which is, in truth, but a sort of Thistle, a fact upon

which Pliny sagaciously comments, deeming it a strange thing that Roman aristocrats should condescend to such asinine food. Not only so, but they squandered upon this vegetable, said he, about thirty thousand pounds yearly (in our money) buying it from the north coast of Africa, or from islands in the Mediterranean. As the Greeks also appear to have had their Artichokes from these islands and regions on the borders of that sea, we suspect that thereabouts was the home of the wild Artichoke that first supplied plants to gardens, and it evidently flourishes in a warm, rather equable climate. And the Romans probably fancied best those Artichokes raised out of their own land, since Pliny implies they were not much grown in Italy, though he gives a few cultural notes, advising the application of some manure, and remarking that plants should not be transplanted when a cold wind prevails. The Roman gardeners used to sow the seed at the end of February. Amongst the ancient virtues were attributed to the Artichoke which are no longer assigned to it. The expressed juice was applied to the head in cases of baldness, and the root was boiled down, the liquor so made having the repute of acting as a stomach invigorator. As the vegetable could not be obtained all the year round, the head was preserved or pickled in sweetened vinegar, cumin seeds or other aromatics being added to spice up the liquor. By one of those laws which are characteristic of the Roman age of luxury and pride, the lower orders were forbidden to eat Artichokes.

And then, for many centuries, this plant seems to have been lost sight of, but about the middle of the fifteenth century some Artichokes were brought from the Levant to Italy by one of the Strozzi family. The Italians regarded it as a curious novelty, and an old author mentions having seen a few of them growing in a Venice garden some years subsequent to the above arrival, and it was cultivated at Naples, but not much known in Italy until the sixteenth century. Early in that century the Artichoke travelled to France, and thence to England, where a dish of the vegetable became one of the choice articles placed upon the table of Henry VIII. The yet extant records of the Royal expenses during his reign yield sundry entries concerning the purchase of Artichokes which were brought to and eaten at his palace in York Place, or what soon became known as Whitehall; or they were occasionally brought to the king as presents from the nobility, when of course a gratuity was bestowed on the bearer. These would be doubtless grown in some of the gardens attached to the palaces of the gentry about the suburbs. Gerard has figured the plant, but does not describe it, though it was probably cultivated by him in his Holborn botanic garden.

The first locality upon which we can fix definitely as one in which Artichokes were raised for the London market was an extensive strip of ground upon the bank of the Thames, which supplied a variety of choice vegetables to the costers and dealers for many years. This now forms a part of the South Belgravia district, but originally it was reckoned as belonging to Chelsea, being situate between that village and the city of Westminster. The oldest name given to the spot was "The Neathouses," from some buildings then occupied by the gardeners, and which are presumed to have got their designation from the manor of Neate or Nayte. It was land somewhat marshy, not much above the level of the river, and sheltered by the Surrey hills, also by the higher ground of Middlesex, therefore well suited for the culture of the Artichoke. We read frequently of these Neathouse gardens during the Stuart period. In the reign of Charles II. they were for a time the resort of citizens, who went to feed upon fresh vegetables or fruit at a place that produced them. A collector of the cries of London, who compiled his list in that reign, has set down this vegetable as one that was commonly cried, and his spelling of the word "hartti-cokks" is original.

Both the globe and the French or oval variety were known at the beginning of the seventeenth century, but it cannot be said that the Artichoke has ever been a favourite vegetable with the British people. From remarks on the subject made in works on gardening written for our ancestors, it seems that many of the plants were lost by mismanagement in the severe winters which have become a thing of the past. This, possibly, rather tended to discourage the culture of the Artichoke. Abercrombie insists upon the importance of "landing up" the plants in good time, and he adds that when there arose a need to replenish beds gardeners often found the young sets were difficult to get, and commanded a high price. The Channel Islands were, in the reign of William III., made to yield many fine Artichokes, and it was said the plan of manuring with seaweed, of course containing saline particles, favoured the growth of the plant. In some districts of Scotland there is still much manure of this kind applied to the Artichoke beds with evident success. Foreigners have, as a rule, praised the English Artichokes, so it would seem our moist climate yields them of equal or superior flavour to those produced on the Continent, where it is much more a leading vegetable than it has yet been in this island. The French are partial to them, eating them frequently at breakfast, also as a sort of salad, and uncooked, while they are young; and in many places the heads are pickled, somewhat on the method of the ancient Romans.

The Cardoon, nearly related to the Artichoke, by some indeed regarded as a mere variety, is of larger size, but it has never attracted much notice in England; therefore, needs only a brief mention. It is, however, grown freely for the table in several European countries, and the down is also carefully preserved to make therefrom an infusion for curdling milk instead of rennet. John Tradescant appears to have been the first Englishman who has anything to say about the Cardoon, and he told Parkinson the botanist that he saw (probably about 250 years ago) three acres of land near Brussels planted with this vegetable, the growers blanching the leaves to be eaten as Endive. It did not arrive here until 1683, the earliest cultivator being a Mr. Sutherland. It is a native of South Europe.

There is another plant popularly styled an "Artichoke" which belongs to a very different group, being a species in the Sunflower tribe. The tubers, not the heads, are eaten, hence the name of Jerusalem or ground Artichoke; the former is evidently a corruption of the Italian word *gerasol*. Prior to the discovery of America, where the plant has its habitat, it was of necessity unknown to the Old World. The French, about the time of Elizabeth, brought it to their country, and as for a time it was called the Canadian Potato, some confusion has arisen in consequence. It is supposed, however, that at an earlier date unknown, Italy had specimens of this Artichoke from Peru or Brazil, where in fact it is truly indigenous, and not in a cold region such as Canada. A London merchant, Mr. Franqueville, had two roots from France in 1617, and by degrees it was distributed throughout Britain.—J. R. S. C.



At a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Robert Hogg, Esq., LL.D., F.L.S., in the chair, the following candidates were elected Fellows—viz., Mrs. Edith Ames Lyde, Edwin George Ardley, Captain Brickwell, R.N., John C. Duke, William L. Ewart, Sydney Wynn Graystone, Mrs. Gardner, The Marchioness of Headfort, Mrs. Nutkins, Frank Price, Baron F. de Rothschild, Walter Hercules Short, William Urwick, Mrs. Frances Williams, and George C. Wylie.

— THE SALE AND ASHTON-ON-MERSEY HORTICULTURAL SHOW will be held in the Botanical Gardens, Sale, on June 19th, 20th, and 21st of the present year. This is the second Exhibition which has been held under the auspices of the Sale Botanical Society, and the former efforts having been much appreciated in the district, an Exhibition of much interest is expected. Eighty-three classes are provided, the prizes for plants ranging in the open classes from £3 to 5s.

— A LIVERPOOL correspondent fears "we shall have NO FRUIT THIS YEAR. We had 8° of frost one morning while the Pears were in flower, and 5° and 6° every morning for a week. My young trees have been full of bloom, but the fruit which appeared to set is all falling off. The wind has been piercingly cold, and the young tender foliage is scattered all over the ground."

— THE AUSTRALIAN ROYAL FERN, *TODEA BARBARA*, though rather scarce in European collections of Ferns, is a bold and handsome species, which grows well in a cool house. The finest plant in cultivation is that in the temperate house at Kew, which, when introduced by Dr. F. Mueller from Mount Macedon, Victoria, weighed 14 cwt. The huge stem is now about 4 feet high and as much in diameter, with strong fronds 5 to 6 feet long, and of a deep green shade.

— AURICULA CHAS. J. PERRY.—A correspondent writes:—"This Auricula is one of the most useful plants a gardener or amateur can have for brightening the conservatory at this time of the year. Its colour is violet-blue, it is very free, and forms fine trusses. Some people would wish to make us believe that the open borders and rockwork are the proper places to grow these old-fashioned flowers. So they are for the Alpines; but to have good blooms, the show and self varieties must have the protection of a cold frame."

— A COPY of "AMATEUR GARDENING" has been sent to us, and a very neat and attractive little paper it is. It is issued from Salisbury Square, and we believe is conducted by the Editor of the *Gardeners'*

Magazine. It does him great credit, and we say with him that "with seven papers to choose from, the man must be hard to please who cannot find one to suit his tastes and requirements."

— WE are informed that Mr. Thos. Lee, late foreman at Shirburn Castle Gardens, Tetsworth, Oxon, has been appointed gardener to T. Hopkins, Esq., San Francisco, California.

— A JOURNEYMAN wishing to improve himself on the culture of Vines, desires to know how Mr. J. E. Waiting managed to grow his BLACK HAMBURGH GRAPES ON THE BACK WALL OF HIS VINERY. He would like to know the height of the vinery at the back, also the size of the bunches that were grown to overlap each other; he would, indeed, be glad to know all the particulars to enable him to succeed similarly.

— WHERE large specimens of any choice variety of *IMANTOPHYLLUM MINIATUM* are grown some caution must be exercised in allowing them to bear seed, as it is surprising what an injurious effect it has even upon apparently vigorous plants. We recently saw a most valuable plant of the variety Martha Reimers which was killed by a heavy crop of seed. This, however, fortunately ripened, and abundance of young plants will be obtained, many of which will probably equal the parent in size and colour of the flowers. This plant was in robust health and received the most careful treatment, but it evidently could not endure the severe strain upon its energies.

— "R." wishes to know if *CESTRUM VESPERTINUM* is grown in England. "It is mentioned by some travellers on the Continent as being extremely beautiful in Spain and elsewhere, bearing a profusion of white flowers. *C. aurantiacum* I know very well, but a white-flowered species I have never seen, and should think it must be scarce if it really is in cultivation here. I understand that the plant has been determined by Mr. Benthams, so no doubt the name is correct. I should be glad to have some information about it."

— "CONSERVATIVE ROSE" writes:—"I am very anxious to procure names of BLUE FLOWERS—real blue, not violet or purple tinted. I shall be grateful to any of your readers who will help me dividing them as follows, under the heads of the seasons. I have collected a few plants, and desire to make a more complete collection. Spring.—Blue Hyacinth, Squills, Veronica, Gentians, *Myosotis dissitiflora*, and Irises. Summer.—New Blue Rose Harebell, *Convolvulus*, *Salvia*, *Ceanothus divaricatus*, *Centaurea cyanus*, *Aquilegia glandulosa*, *Delphinium formosum*, and *Lobelia*. Autumn.—Blue Pansy. Hothouse.—Blue *Cineraria*, *Achimenes longiflora major*, *Tweedia cærulea*, *Sollya heterophylla*, *Leschenaultia biloba*, and *Plumbago cærulea*. Any help will be gratefully received."

— RASPBERRY WEEVILS IN CORNWALL.—We learn from the *Cornish Telegraph* that the Weevil, *Otiorynchus picipes*, which played such havoc among the Raspberries a few years since, has again made its appearance, and the market gardeners are on the look-out for the mischievous little insect, which kills the fruit-bearing shoots by boring holes through them.

— BEFORE us are blooms of *CALCEOLARIAS* from Canon Babington Glendermott Rectory, Londonderry, who writes:—"I send a few blossoms of Carters' Victoria compacta strain of *Calceolaria*. The plants are wonderful. In shape, form, and colours the flowers are splendid. My gardener has been having all the neighbouring gardeners to inspect, praise, and, I would add, envy them." Beyond question the plants are well cultivated, otherwise such remarkable flowers could not have been produced. They merit high praise, some of them being 2½ inches across, full, smooth, bright, and diversified in colour. It is but simple justice to say that they are a credit to both cultivator and seedsmen.

— THE summer Exhibition of the LEE, BLACKHEATH, AND LEWISHAM HORTICULTURAL SOCIETY will be held on July 9th and 10th. The Society appears to be admirably supported, and we are glad to see so many special prizes offered. We also observe a prize of honour—namely, a silver memorial cup, presented by the President, John Penn, Esq., in memory of the late President, Dr. Carr, offered under the following conditions:—"The cup is the property of the Society after the formal presentation to the winner of the largest amount of prize money at the summer Show, it will remain in the custody of his employer. The gardener to have for permanent possession a silver medal, showing him to have been the winner for that year."

— In an elaborate article by Mr. D. Cannon on the "MINERAL

REQUIREMENTS OF FOREST TREES," which appears in the May issue of the "Journal of Forestry," a table of wood analyses of the principal forest trees is given. Wood of different ages has been taken, and the relative proportions of potash, soda, lime, magnesia, iron, and several compounds are fully stated. The table was, it appears, originally prepared by Dr. R. Weber of Bavaria, and has been also published in France. A cubic metre of each was taken, which is equivalent to about 37 of our cubic feet, and the amount of ash is given in grammes and English pounds or decimals of a pound. The following will serve as examples:—Beech, fifty years old, total ash 6 lbs.—potash 1.4 lb., soda 0.086 lb., lime 2.6 lbs., magnesia 0.62 lb., sesquioxide of iron 0.65 lb., sesquioxide of magnesia 0.71 lb., phosphoric acid 0.44 lb., sulphuric acid 0.13 lb., silicic acid 0.4 lb. Oak, fifty years old, total ash 12 lbs.—potash 1.55 lb., soda 0.32 lb., lime 8.84 lbs., magnesia 0.35 lb., sesquioxide of iron 0.077 lb., sesquioxide of magnesia 0.024 lb., phosphoric acid 0.45 lb., sulphuric acid 0.10 lb., silicic acid 0.26 lb. Birch, Larch, Pine, and Silver Fir are treated in the same way.

— "H. L." writes:—"Can any of your readers inform me if *CEREUS GRANDIFLORUS MAYNARDI* is in cultivation now, and where a plant could be obtained?"

— AT the meeting of the ROYAL METEOROLOGICAL SOCIETY, to be held at 25, Great George Street, Westminster, on Wednesday, the 21st inst., at 7 P.M., the following papers will be read:—"Note on the Proceedings of the International Polar Conference held at Vienna, April 1884," by Robert H. Scott, M.A., F.R.S., President; "Meteorological Observations on the Maloja Plateau, Upper Engadine, 6000 feet above the Sea," by A. Tucker Wise, M.D., F.R.Met.Soc.; "On some Results of an Examination of the Barometrie Variations in Western India," by A. Naylor Pearson, F.R.Met.Soc.; "Illustrations of the Mode of Taking Meteorological Averages by the Method of Weighing Paper Diagrams," by Richard Inwards, F.R.Met.Soc., F.R.A.S.; "Ten Years' Weather in the Midlands," by Rupert T. Smith, F.R.Met.Soc.

— WE regret to have to announce the death of MR. ALEXANDER JAMES MAULE, of the Stapleton Road Nurseries, Bristol, which took place on Monday, the 5th inst., at the age of sixty-three. Mr. Maule was the son of the late Mr. William Maule of these nurseries, and was the third generation of the family who carried on business at the same address. The Stapleton Road Nurseries, together with those of Durdham Down, were at one time the most important of the west of England, but the extension of the city, and the great increase in the value of land for building, combined to limit the extent of both establishments, and in the case of the latter a new nursery has been formed further in the country. Mr. Maule had of late years converted his ground into pottery works, for which the clay was well adapted. In the early days of the introduction of Indian Conifers and Orchids Mr. Maule's was a prominent name, with which *Cypripedium insigne* Maulei is intimately associated. Large consignments of seed of *Cedrus Deodara*, *Pinus excelsa*, *Abies Smithiana*, *Picea Webbiana*, &c., were frequently sent to the Stapleton Road Nurseries, and Mr. Maule was also successful in opening up communications in Chili for the importation of seed of *Araucaria imbricata*. One of Mr. Maule's most recent introductions was *Pyrus Maulei*, by which his memory will be perpetuated. Mr. Maule was a bachelor, and a man of a thoughtful and philosophic turn of mind. It was refreshing to spend an afternoon with him, and to discuss matters of horticultural or arboricultural interest, for he had always views on these subjects to propound which had at least the merit of freshness; and the man himself was of that loveable nature which always gave a zest to the time spent in his society.

— EVERY year the CALCEOLARIAS AT BEDFORD HILL HOUSE, BALHAM, are eminently worthy of notice, alike by the excellence of the varieties and the superiority of culture as displayed by Mr. Rapley. To say that they are equal to those of past years is saying about all that can be said, as it is not easy to imagine larger, smoother, finer flowers, several of them 2½ inches in diameter, and in not a few instances so numerous that it is difficult to see how they can expand. Still they find their way out of the crowd and form massive heads of great brightness in the yellow grounds, chasteness in those of a creamy nature, and richness in the glowing crimson self and mottled varieties that contrast so effectively with the finest of canary-coloured varieties, the conspicuously beautiful Cloth of Gold. But fine as the flowers undoubtedly are, it is impossible not to admire equally the sturdiness of the plants. Except for affording the flowers space for development no stakes would be needed. With stems as thick as the finger of the cultivator, and vary-

ing in height from 6 inches to a foot, they are quite self-supporting; still, a little tying-out is done for the purpose mentioned. The plants are grown in 5-inch, 6-inch, and 7-inch pots, the object being to display as many varieties as possible in the 100-feet-long house. It may be stated without any reserve that out of the great number there is not one inferior, and the excellence of the strain is rendered the more striking by the contrast that is afforded by a dozen or two of plants raised from a celebrated continental stock, and sent for testing and comparison. Mr. Rapley is to be congratulated at the success he has achieved by careful fertilisation and selection in establishing such a valuable strain of these exceedingly handsome greenhouse flowers, also on the skill that is manifest in the cultivation of the plants.

— MR. JOSEPH MALLENDER sends the following SUMMARY OF METEOROLOGICAL OBSERVATIONS AT HODSOCK PRIORY in April:—Total rainfall, 1.78 inch; maximum fall in twenty-four hours on the 28th, 0.35 inch. Rain fell on nineteen days. Total duration of sunshine in the month, 106.1 hours, or 26 per cent. of possible duration; three sunless days. Average velocity of wind, 7.6 miles per hour; it did not reach 400 miles on any day, and fell short of 100 miles on seven days. Mean temperature of the month, 44.0°. Maximum on the 3rd, 64.9°; minimum on the 23rd, 23.6°. Maximum in sun on the 22nd, 120.9°; minimum on grass on the 23rd, 21.0°. Mean temperature of the air 9 A.M., 45.7°; mean temperature of the soil 1 foot deep, 46.5°. Nights below 32° in the shade, 7; on grass, 16. During the first nine days of the month the temperature was above the average, but the rest of the month it was considerably below it, with north-east winds and showery weather. During the previous eight years only two Aprils had a lower mean temperature—viz., 1879 and 1881. It may be stated that the mean daily minimum is 7.1° lower than in January. There have been no heavy falls of rain, but a hailstorm occurred with thunder on the 28th. The total rainfall of the period is less than the last two years. The sunshine has been much less than in any of the previous three years. About 90 per cent. of our fruit blossom is killed on the Apple, Pear, Plum, and Gooseberry. Cherries have not suffered so much. Many Strawberry flowers have black centres. The Oak is at least fourteen days before the Ash.

— THE monthly general meeting of the NOTTS HORTICULTURAL AND BOTANICAL SOCIETY was held at the Mechanics' Institute, Nottingham, on Wednesday evening, May 7th, when Mr. E. Jenkins of Ratchiff-on-Trent read a very interesting and exhaustive paper on "Spring Gardening and Spring-flowering Plants." The chair was occupied by Mr. J. R. Meadows of Rock House, Basford, who exhibited a large collection of dried specimens of British flowering plants, which were briefly described by him. Mr. Samuel Thacker sent a remarkably well-grown plant of *Cypripedium barbatum* with very highly coloured flowers. Mr. N. German, gardener to T. B. Cutts, Esq., Malvern House, sent a choice collection of eut Orchid flowers, which were much admired, amongst them being a splendid spike of *Vanda suavis*. Mr. Walker, gardener to J. W. Lewis, Esq., of Hardwicke House, Nottingham, had a choice collection of eut stove and greenhouse flowers; whilst Mr. Argyle, an artisan Rose-grower, had a magnificent stand of Rose Cheshunt Hybrid, and for the purpose of illustrating his subject Mr. Jenkins, the reader of the paper, set up a large and choice collection of spring flowers, which had been sent by Mr. T. S. Ware of Tottenham and Mr. William Ingram of Belvoir Castle, and which were admired by all present. Mr. Jenkins in a very able manner commented at some length upon the great strides which had been made of late years in spring gardening, and instanced Belvoir and other places as showing what might be done with many plants which some considered to be almost worthless objects. He then gave a description of many spring-flowering plants which were suitable for town gardens, and the positions most adapted to the requirements of a large number of spring plants. At the conclusion of his paper he was accorded a very hearty vote of thanks.

— THE Committee of the above Society also offer the following prizes, given by Messrs. Pownall, Pearson, and Thacker, to be competed for by under gardeners, who are members of this Society, for an essay on "THE ROTATION OF CROPS IN A KITCHEN GARDEN FOR A YEAR," not to exceed twenty minutes in reading, to be illustrated by a plan. First prize, 12s. 6d. and the certificate of the Society; second prize, 7s. 6d. and the certificate of the Society. The competition will take place at the monthly meeting of the members at the Mechanics' Institute on June 11th, and will be decided by the members present. Intending

competitors must give notice to the Hon. Secretaries by Saturday, June 7th, of their intention to compete.

PANICUM VARIEGATUM AND ISOLEPIS GRACILIS.

In the above we have two very useful plants for decorative purposes, and no one having such work to perform should fail to grow a few dozens of each. A great recommendation is that they grow freely in any light sandy soil, and in a genial temperature; and they are so easily propagated that anyone in possession of a few plants may readily raise a large number. The *Panicum* is increased by cuttings, the *Isolepis* by division. They may be employed with effect in many ways. What, however, I wish more particularly to draw attention to is their suitability for growing in small thumb pots. They have a very pleasing appearance as a fringe to other plants, and for such a purpose they cannot be too largely grown.—JOSEPH RICHARDSON, *Calverton Hall, Notts.*

TYING DOWN VINE SHOOTS.

In the last issue of the Journal Mr. Young advocates tying Vine shoots below the wires; but desirable as that may appear, there are several objections to it, which in some cases, indeed, render it almost impracticable. In the first place, if the shoots are brought below the wire and the ties employed should break when the bunches are swelling, there is nothing to prevent the shoot breaking and the Grapes falling; whereas when the shoot is above the wire this would prevent any serious accident, even if the ties did break. Another matter of importance is that there is often great danger of breaking the shoots in endeavouring to bring them beneath the wires, especially if the growth is somewhat advanced before the tying-down is attended to. In some cases indeed it is quite impossible from the position of the shoots to place them under the wires. It should also be remembered that the chief danger of the shoots pressing up to the glass in the early stages, which tying down is quite sufficient to prevent, but afterwards the weight of the bunches will keep them down effectually. I have seen so many laterals broken in efforts to get them under wires, as advised by your correspondent, that I thought a word of warning might be useful to some readers.—V.

PRUNING ROSES.

LIKE "A. C." (page 345) I was for many years a firm believer in early pruning; so much so, in fact, that after the wood became matured in the autumn I could not withstand the temptation to prune such varieties as by experience I knew would be least likely to suffer thereby. The same operation was also practised at intervals through the winter season when the weather and other circumstances permitted, and very seldom indeed had I cause to regret having done so, by afterwards seeing either blackened shoots or deformed buds as the result of such practice.

This was, however, in the high and comparatively dry midlands, where the elevation was such as insured a continuance of a more uniform temperature and a far greater dryness in the atmosphere than I have found in the more variable valleys of the south. In these there is a far greater tendency in the Rose to produce early and more succulent growth, that is much more susceptible to injury than when grown in a more elevated position where the climate is drier and where there is a comparative immunity from spring frosts. With some assurance and much faith I ventured to follow the same practice for a few years after I became located in the south, but too frequent failures soon caused me to change my tactics, especially when I found by comparison that the results from the early and the late pruned plants were most decidedly in favour of the latter.

After several years' experience, and also after comparing notes with others similarly situated to myself, I can come to no other conclusion than that April-pruned Roses give, in such positions, at least much the best results. These notes apply more particularly to the treatment of standards, which must from necessity, so as to keep them within bounds, be pruned back annually, but in respect to dwarf Roses I much prefer unpruned pegged plants, whether for the purpose of garden decoration or for producing fine blooms for the exhibition table. These, if the buds be well thinned, give as fine and as perfect blooms as it is possible to produce either upon standards or upon hard-pruned plants, and they are not nearly so liable to be destroyed by early frosts as the young shoots are upon severely pruned plants.—W. C. T.

EXOTIC PLANTS IN CORNWALL.

THE similarity of the flora of this part of England to that of the Channel Islands and also of West Europe is very striking. A remarkable fact in connection with West Cornwall, or, indeed, of the entire county, is the singular absence of any extensive tracts of woodlands. Plants from the Cape of Good Hope and South Australia seem to thrive there with quite a native vigour. Japanese plants are singularly "at home." Camellias, Rhododendrons, and Azaleas may be specially mentioned as attaining tree-like size under ordinary cultivation. Very beautiful are the three splendid "specimen" Camellia trees during the very early months of spring at Tredrea, near Penzance, the seat of Robin Bolitho, Esq. The very large specimen tree at Penalvern, near Penzance, is said to be the first ever brought into Cornwall, or, at the least, the western part of the county. A very famous wall of Camellias is that at the residence of Geo. Williams, Esq., Scorrier. Lamorran in the east and Trewidden in the west are

famous for their very fine collections of Rhododendrons, which assume gigantic proportions.

The severe winter 1879-80 killed many important exotic plants. Many more suffered great injury. Among succulent plants *Aloe Barbarea*, *A. barbadensis*, *A. ciliaris*, *A. dichotoma*, *A. plicatilis*, *A. socotrana*, and *Agave undulata*; *A. filifera* and *A. mitris* were, I am informed by Mr. Tyerman, killed in and around Tregony. Palmaceous plants, such as *Chamaerops humilis* and *Fortunei*, *Corypha australis*, and several others were severely damaged, and in many instances killed, but escaped pretty well at the Scilly Islands. Several species of *Araucaria*, including *excelsa*, *Cookii*, and *Bidwellii* were also killed.

Plants which are quite hardy at Scilly differ very much from those of the mainland, and more particularly the more eastern part of the county. Some beautiful *Dicksonias* have withstood the severity of several winters very well indeed. At Scilly and at one or two favoured localities around Penzance it is not much injured, but at Hayle (about twelve miles from Penzance), a large plant, some several feet in height, was killed. As a general rule this Fern requires protection from winds. Next to the Ivy and *Ampelopsis* no climber here flourishes in so luxuriant a manner as the common Passion-flower (*Passiflora cærulea*); through mild winters it is evergreen, the leaves presenting a pleasing contrast to the numerous deep yellow Orange-like fruit. It thrives well within a short distance of the sea, where, however, it becomes perfectly deciduous.

The Heaths are well at home there as border plants in a peaty soil. The one which thrives and continues in flower from the early part of December until early summer is *Erica carnea*; *E. ciliaris*, *E. gracilis*, and *E. mediterranea* I noticed in flower at Christmas a year or so ago. Although preferring a peaty compost, most of the hardy sorts do very well in a sandy soil. Naturally the *Veronicas* are perfectly at home; but I would call attention to not only one of the best, but one which flowers continually throughout winter and spring—it is *V. Lindleyana*. The habit of the plant is very neat, and the racemes of flowers are white with a bluish tint. Much-neglected and very hardy plants are the several species of *Cotoneaster*; well-trained plants of *C. microphylla* are pretty objects throughout the winter, having a profusion of small white flowers and conspicuous red berries. Growing on a wall with the last named, I noticed in Mr. Mitchinson's garden a rather weather-beaten specimen of *Clematis Jackmanni*. It has been there for several years and continues to produce its handsome flowers throughout the winter—less profusely, it is true, than it would do under more favourable conditions. Several *Dracænas* are almost hardy; during severe winters they are usually killed to the ground, but they generally throw out side shoots from the root during the spring months. Much serious mischief to these very desirable plants may be prevented by carefully collecting the leaves of each close together, securing them in this position by matting; they will then withstand the severest of weathers almost unhurt. Scilly is the home for *Dracænas* and *Cordylines*, although the collection there has suffered much of late years. The number of *Acacias* there is, I believe, considerable. They do not appear to require any special culture, but thrive well in a rather light sandy soil, and in a position sheltered from the winds. As is the case when grown in the greenhouse, unless they are carefully trained and kept within bounds they soon become straggly and ill-shaped.—WILLIAM ROBERTS.

WHAT IS AN AMATEUR?

THIS question appears on pages 349 and 359 of your Journal, and has reference to the method of exhibiting at the late Auricula show. The question should be settled and not shirked, and I think the prizes might be divided better. I suggest the following for consideration and discussion by abler writers than myself. Cannot classes be formed in four sections, as follows:—1, nurserymen; 2, professional gardeners; 3, amateurs; and 4, cottagers?

First, I would allow exhibitors in sections 1 and 2 to show in their respective classes or together; also those in sections 3 and 4. I would allow 3 to show with 2, and 4 with 3, but not in reverse order. A champion class might be formed for the old and successful growers, allowing 1, 2, and 3 section exhibitors to compete.

— The definition of an amateur at present admitted appears to many little short of monstrous, and the manner in which all the gardening journals recognise a gentleman's gardener and a dealer in plants as an amateur is to me very surprising.

A nurseryman is a person who trades in plants.

An amateur is a person who does his own work and does not grow plants for sale.

A professional gardener is a person employed by a gentleman who provides skilled helpers in the management of his garden.

A cottager is a labourer or artisan who does not work as a cultivator in a garden or nursery as a means of livelihood.

The above is quite applicable to all shows of flowers, fruit, and vegetables.—J. E. WAITING, *Grange-over-Sands.*

THE HEALTH EXHIBITION.

THE extensive series of buildings in the Royal Horticultural Society's Gardens, South Kensington, are now crowded with exhibits of much general interest that will undoubtedly attract large numbers of visitors during the season. Horticulturists will find much to admire, but of special interest to them will be the seedsmen's stands, the nurserymen's groups of shrubs and Conifers, while the numerous Promenade, Fruit, and Vegetable Shows to be held by the Royal Horticultural Society during the season will constitute still more important attractions. The grounds have been excellently prepared, the slopes and terraces returfed, the walks newly gravelled, and everything

made as fresh and neat as possible. This part of the Gardens is indeed thoroughly appreciated by the visitors, and is very creditable to Mr. Barron, who has superintended the various improvements effected.

Near the entrance Messrs. Sutton & Sons, Reading, have a prominent position for their large and handsome stand of seeds, grasses, and models of vegetables. The arrangement does not appear to differ in any essential particulars from previous exhibits, but in extent and diversity admirably represent the resources of the firm, whose products have long since obtained a world-wide fame. A short distance from this Messrs. J. Carter & Co., High Holborn, also have a stand which may be termed quite a museum of seeds, fruits, and vegetable products. Much care has been exercised in the preparation and arrangement of these exhibits, which are very interesting. The seeds are placed in small globular glasses, and arranged in groups according to the particular uses of the plants they represent. For instance, there are groups devoted to bee-feeders, textile plants, roots, tubers, &c., Clovers and forage, Grasses, pulse, cereals, oil-yielders, and green vegetables, and besides there is a series of Nuts and berries, and one of prepared products, such as meals of various kinds. Samples of Australian Hops and ensilage, together with specimens of tropical produce, still further increase the interest of these exhibits. Messrs. Webb & Sons of Stourbridge also contribute an excellent stand of vegetable and grass seeds, with models and other appropriate objects, Mr. Wheeler having a stand of a similar nature. A series of accurate models of Indian fruits, lent by the Duchess and Prince of Mantua and Montferrat, forms an interesting exhibit, and includes specimens of the Warty Citron, the Shaddock, Custard Apple, Plantain, Bread Fruit, Mango, Guava, the Cashew Nut, and many others.

The exhibits of preserved fruits and jam constitute another feature of interest, especially as in some cases the mode of preparation is shown. Numerous cases are devoted to representing the chief food products obtained from the vegetable kingdom, showing the parts of the plants employed and the various stages of preparation.

Outside the building are some extensive groups of Rhododendrons, which in many cases are showing abundance of strong buds and giving promise of a handsome display in a few weeks. Messrs. Lane of Berkhamstead contribute very largely, their Rhododendrons being particularly fine, the banks in front of the central annexe and along the east avenue being especially noteworthy. Mr. A. Waterer, Knap Hill, has some tastefully arranged banks of Rhododendrons in the central avenue, also some small Conifers and Hollies. On the east side Messrs. G. Paul & Son, Cheshunt, have a series of pretty beds of Pansies and hardy Azaleas, with a central plant of Rhododendron in each, and two very handsome specimens of *Araucaria imbricata*. A corner bed of Roses, dwarfs and standards, is extremely pleasing, some plants of White Baroness being particularly well flowered; and the miniature rockery, which is well furnished with select alpine plants, is an important portion of Mr. Paul's exhibit. Messrs. Lee & Son, Hammersmith, contribute some small Conifers. Mr. Maurice Young of Milford has a fine bank of Rhododendrons on the west side of the garden, the plants being exceedingly vigorous and well furnished with buds; and Mr. Noble of Bagshot has arranged an extensive and fine representative collection of Conifers and evergreens.

IS OUR CLIMATE DETERIORATING?

A PAMPHLET on the above important subject, prepared by Mr. William Thomson, the Tweed Vineyards, Galashiels, and published by Messrs. Blackwood & Sons, is worthy of perusal by gardeners and cultivators generally, also by meteorologists, as will be apparent by the following copious extracts:—

It would be presumption on my part to give either a negative or affirmative reply to the inquiry, Is our climate deteriorating? What I consider as within the sphere of my ability, and for which my special calling may to some extent qualify me, is to gather up as many facts bearing on the subject as I conveniently can, and let those who may peruse the record of them draw their own conclusions.

Before entering on the present inquiry it may be well to remark, that if we find reason to conclude that a change of climate is going on, there are ample precedents for such change; Fossil flora and fauna give proof of this, and geologists tell us that we have in Britain had a glacial, interglacial, and postglacial climate. These periods saw great changes of climate, and what has been may be again, like causes operating.

From a mass of correspondence I have from gardeners and others who are close observers of the weather and its effects on vegetation, I begin with extracts from letters from Mr. Turnbull, who has been gardener at Bothwell Castle, near Glasgow, since 1828. Mr. Turnbull is well known as a very shrewd observant man, and he has kept notes of the weather for more than fifty years. I was under his tuition from 1832 till 1837. During these five years he never failed to have fine crops of Peaches, Nectarines, and Apricots on the open walls. He had also great crops of Green Gage Plums and splendid Ribston Pippin Apples that kept till April of a golden colour and quite firm. It will be observed that the last fine crop of Peaches he had was in 1870, and the Apricot trees have been twice destroyed by the weather. At the same time Mr. Turnbull does not believe that the weather is deteriorating permanently. He expects that the seasons will yet become as genial as they used to be.

He writes: "I am afraid you will find the deterioration of our climate rather a ticklish subject, for we have had a very variable climate for a hundred years. 1782 was a very severe winter. The winters of 1813 and 1814 were also very severe. 1836, you will remember, was a very late harvest—much corn in Lanarkshire and elsewhere was covered by a foot of snow before it was cut, and some never cut at all. 1838 was Murphy's season, and with us the temperature fell to $3\frac{1}{2}^{\circ}$ below zero. 1839 was a very late spring—we had a fall of snow on the 14th of May, and a severe frost on the 15th, which destroyed all our fruit. On the 24th December, 1860, the temperature fell to 11° below zero, and killed all our Laurels and many other shrubs. In 1881 we had the thermometer six times below zero. The wood of our Peach trees not being well ripened, that and the following year nearly killed the whole of them. We had good crops of Peaches in 1870. The young trees I planted after the others were killed are looking well; and if the seasons

take a favourable turn they may be good again, and so may agricultural crops."

This evidence, given by Mr. Turnbull, seems to prove that for some time back there has been a swing of the pendulum in the direction of less genial weather; and it is from this cause more than any other that agriculture is suffering at this time. Let us hope that the swing in an opposite direction may soon commence.

Mr. Kinghorn of Sheen Nursery, Richmond, in reply to my inquiry, writes: "With regard to our climate—when I came to Orleans House, Twickenham, in 1837, and for ten years afterwards, I never covered the fruit trees on the walls when in bloom, and always had good crops; but after that date I was obliged to take to covering them. Till 1847 we invariably had good crops of Figs both on wall trees and standards, the latter bearing abundantly. Vines also bore well on the walls, and ripened their fruit nicely. In 1847 the mildew attacked them (brought about by cold and damp), and they were no longer worth the attention they required. I have observed that for the last twenty-five or thirty years Peach, Nectarine, and Apricot trees do not make the growths they used to do, neither in stem nor branches. Certainly we have had more severe winters since I came to England than they could have had before for many years, judging from the large Evergreen Oaks, Arbutus, Laurels, and Cedars that have been killed, as well as great old Banksian Roses and Myrtles—the latter, to my knowledge, 23 feet high, with great thick stems—none of which seem likely to be replaced, unless we have a change of climate for the better, of which at present there seems little prospect."

Mr. Thom, who has been for many years gardener at Newton Don, near Kelso, Roxburghshire, states that no kinds of fruits are to be compared with what we grew forty years ago, and he attributes the change to the want of sun in summer and the severe winters.

Mr. Brown, gardener at Abercrairie, near Crieff, writes: "Referring to your inquiries about the weather, and the influence of climatic change on our fruits, looking back for thirty-five years, it is a fact to my mind that, though we have improved much in indoor culture of fruit, we have fallen back in outdoor. I have been a visitor to the Carse of Gowrie for the last forty years, and the Apples, as seen there now, are not worth using, as compared with what they were in my young days. Here, at Abercrairie, I am gradually, even on the south walls, doing away with all the fine Pears, and putting on the common hardy sorts. Ribston Apples, such as I knew in my youth, are not now to be had. I attribute this chiefly to climatic change, and partly want of attention to outdoor fruit."

Mr. Lindsay of the Edinburgh Botanic Gardens, writes:—"During my connection with the garden, some twenty-five years, the plants on the walls, with few exceptions, are the same, and I should say most of them were planted by Mr. William M'Nab. The following are a few which have disappeared from the walls, even during my recollection—viz., *Paulownia imperialis*, *Bignonia radicans*, *Acacia dealbata*, *Eucalyptus*, and *Escallonia*. In other parts of the garden—Arbutus, all old plants; *Quercus suber*; *Alaternus*, many varieties; *Phyllyrea*, also many varieties; *Robinia serrulata*, &c., &c. Some of these are being replaced with young plants; but it is disheartening to find them making such slow progress. A few plants still survive that are considered tender, and that have been unprotected for fifty years, such as the Tea Plant, *Chamærops humilis*, various New Zealand Veronicas and shrubs, which only proves that they are harder than was generally supposed."

All who read Mr. Lindsay's letter will, I think, admit that it is a very interesting one; and at least it goes far to show that the swing of the pendulum of the weather is in the direction of deterioration in the current century.

Mr. Webster of Gordon Castle is "inclined to fancy our springs are colder and more uncertain and precarious, our autumns more frequently wet, and summer heat shorter than in bygone years."

Mr. Barron, Superintendent of the Royal Horticultural Society's Gardens at Chiswick, writes: "I do not think that our climate has deteriorated. I may not be observant enough, 'tis true, and am aware there have been a number of cold sunless seasons lately. 1883 was an exception in this quarter, being one of the mildest, the month of July excepted. The present autumn has been one of the clearest and mildest ever experienced."

In a second letter Mr. Barron writes: "I quite agree with you that we have been passing through a period remarkably unfavourable for fruit cultivation. This I attribute partly to cold wet weather in May, and to cold wet autumns, which has prevented the proper maturation of the wood."

Mr. Barron, however, thinks this unfavourable weather is only temporary. Mr. Rust, gardener, Eridge Castle, Tunbridge, is disposed to think the springs more backward and ungenial than they used to be. Many others express similar opinions, and not one of the many gave it as his opinion that seasons for years back have been as suitable for vegetation as they were at one time.

The evidence of Mr. Pettigrew of Cardiff Castle, on growing Vines in the open air, is also adduced, and Mr. Pettigrew concludes: "The seasons must alter considerably, or the Vineyard experiment at Castle Coch will turn out a complete failure."

From the gardener at Torloisk, in the Island of Mull, I have the following replies to my inquiries: "The Hydrangeas still grow out of doors here during summer and winter, but do not flower well. The wood is never properly ripened in autumn, and the damp and frost together cut them down."

In my knowledge of these plants, more than fifty years ago, they were great bushes, covered every summer with fine masses of bloom. With regard to Plums and Pears, he replies: "There are no Magnum Bonum Plums nor Jargonelle Pears here now; and I am certain they would not ripen. Even Apples do little or no good here, except on walls."

I have given a fair sample of this class of evidence, and will now make some extracts from a scientific writer in a Swedish journal, headed: "Why is the Climate of Europe Growing Colder?" He replies: "Because that for some years the floating ice has extended a great way towards the south—thus between Greenland and the Arctic Sea colossal masses of ice have accumulated on European coasts. Navigators now frequently find ice in latitudes where it never before was found in summer months; and the cold reigning upon the Scandinavian peninsula last summer was the result of the immense masses of ice floating in the region where the Gulf stream bends

towards our coast. This is a repetition of the observations made in the summer of 1865. The unaccountable vicinity of the masses of ice has rendered the climate of Iceland so cold that corn no longer ripens there, and the Icelanders are in such fear of a coming famine and ice climate that they are beginning rapidly to form for themselves a new home in North America."—(Copied from a translation in the "Ladies' Journal.")

I now submit such evidence as I have been able to collect from an earlier date and wider field.

VINEYARDS IN ENGLAND.

In "Pomona Fruit Garden, Illustrated," by Batty Langley of Twickenham, 1729, he describes various methods of growing Grapes for making wine in open vineyards, each Vine producing from ten to twelve bunches of Grapes, and adds: "If any doubt or dispute the truth hereof let them but go and see the Vines now growing in the garden of Mr. Warner at Rotherhithe, which, by his judicious management after the manner before described, annually produce great quantities of Burgundy, and, if I mistake not, claret Grapes also, with which he makes cheerful nectar for the accommodation of his friends."

Mr. Langley then gives a dissertation on the growth of Grapes against walls in England. He had a high opinion of one he calls "The July Grape," because it ripened in that month. The Royal Muscadine did not ripen till the 15th of August. Figs gave two crops a year—one ripe about July 10th, the other in September.

I fear there is no Grape in cultivation at present that will ripen in July in the climate of London. The Royal Muscadine is a well-known Grape; but I am disposed to think that in no part of Britain will it ripen on the open wall as early as August 15th, which it appears to have done 150 years ago.

I have a very old book, which was printed in 1631. It is a republication, by a "Captain Garvase Markham," of a much older book called "The Whole Art of Husbandry." In it the Grape is treated of as a commonly cultivated fruit in England.

Having often visited a very sheltered spot in Hatfield Park, Herts, known by the name of "The Vineyard," sheltered on one side by a grand old Yew hedge that appeared to be three hundred years old, I thought it likely that at some date it must have been planted with Vines after the style of those of France and Germany.

I recently asked the proprietor, the Marquis of Salisbury, if he could give me any information regarding it, and he most courteously directed his Secretary to send me the following communication:—

"Hatfield Park, January 2, 1884.

"SIR,—I am directed by the Marquis of Salisbury to acknowledge receipt of your letter of the 29th December, and, in reply, to send you the enclosed notes with regard to the Vineyard at Hatfield.

"I am, yours, &c., H. T. GURTON."

"The Vines at the vineyards at Hatfield were planted in 1610–11. As the vineyard was 5 acres in extent, and 30,000 Vines were planted, it may be concluded that they were standards. The Vines were a present from the wife of the French ambassador to Sir Robert Cecil.

"It is probable that this was one of the latest vineyards planted in England. There is no record of the time when it was abandoned. Vineyards in England are mentioned as early as A.D. 280, and there are thirty-eight entries of vineries in the Doomsday Book (compiled 850 years ago). Camden says, in his 'Britannica': 'It may seem to be the slothfulness of the people more than the indisposition of the air that this nation yieldeth not wine at this day.' The vineyards probably declined gradually with the growth of commerce, which enabled better wine to be got from France than could be produced at home. (The overthrow of the monasteries gave the finishing blow to home production of wine.)

"Parkinson, writing of vineyards in 1627, says: 'The former vineyards in England have long since been destroyed, and the knowledge how to order a vineyard has entirely perished with them.'

"Austin, writing in 1663, gives as a reason why it is fruitless labour to strive in these days to make a good vineyard in England—'That the years are not so hot in England as formerly.'

It will be remarked that Austin blames the climate for the abandonment of open-air culture of the Vine for wine-making.

SEVERE WINTERS.

In an inquiry of this sort the severity of recent winters must be taken into account, and I think it is pretty certain that no such frost, in its fatal effects on vegetation, as that of the 4th December, 1879, had occurred for 300 years. The grounds upon which I make this statement are—first, that old Yew trees that had stood the frosts of more than 300 years succumbed at that time, as at Floors Castle and elsewhere; and, second, that I looked over the "Chronicles of Fortingal," being extracts made from the "Black Book of Taymouth," by Cosmo Innes, where special reference is made to only two severe winters during a like period. In the one case frost and snow began on the 30th November, 1554, and continued till 17th January, 1555. The next notably severe winter began on January 15th, 1572, and lasted till March 22nd.

These, by the reference made to their effects, seem to have been on a par with 1879.

THE WEATHER ABROAD.

Recently the climate has been peculiarly erratic. For instance, in Florida, on the shores of the Gulf of Mexico, which supplies the Gulf stream with its tepid water, Orange trees that had stood for one hundred years have been killed by frost last winter, and in others of the Southern States of North America railways have been blocked where snow was hardly ever seen before.

The State of New York, twenty years ago, produced for exportation 1,750,000 barrels of that finest of all Apples, the Newton Pippin, in the highest condition of excellence; now it produces only 250,000 barrels, and they are small and very inferior in quality. There is still a great quantity of an Apple called the Newton Pippin exported. It is, however, a very inferior Apple compared with the true one. Unfavourable change in the climate is the assigned cause of this falling-off in the supply of the true Newton Pippin.

An extensive fruit-importer in Edinburgh recently showed me a letter from his correspondent in Spain, begging to be released from a contract to

supply 5000 boxes of bitter Oranges, on the ground that nearly all the fruit in the district of Seville had been destroyed by frost, which was, he said, an unprecedented occurrence.

SUMMARY.

It seems to the writer that the weather has got curiously mixed of late. Such a succession of severe storms of wind in Britain as no living person can remember; this accompanied by very mild temperatures, while frost and snow are stopping the trains in some of the Southern States of America where snow is seldom seen; sunsets of the most gorgeous description, and earthquakes on the most gigantic scale—all pointing to some disturbance within, at least, the atmosphere of our planet. Whether this is the result of stellar influence or not some of our scientific men may be able to determine. In the meantime the ungenial weather we have had for some years has been in large measure the cause of the depression of the great interest of agriculture, and through it all other interests have suffered, and will suffer still more if the average temperature sinks but a degree lower than it has been of late years. The warm nights of my boyhood and early life, where are they now? Do ladies wear thin muslin dresses now, as their mothers wore nearly all the summer? "As hardy as a Whin bush" used to be an aphorism. It can no longer be given as such, for the Whin has been killed to the surface of the snow or soil almost annually of late years.

I am indebted to Mr. Buchan for notes, of which the following is a digest:—

The mean temperatures of the months of May, June, and July for forty years—from 1840 to 1880 inclusive—show that the twenty years from 1840 to 1860 were warmer than the twenty from 1860 to 1880 by 40.2° on the three months; and supposing the same ratio to hold good over the year, it would give 160.8° on the twenty years. This is not much when divided over twenty years; still it is on the adverse side, and we have but a small margin we can afford to lose in these latitudes.

MEDINILLA CURTISII.

FOR compactness of habit and floriferousness this charming little plant is not surpassed by any of its relatives, and these characters alone would be sufficient to render it worthy of attention. Beyond those recommendations, however, it possesses such a simple and pleasing beauty that it will certainly rank high amongst favourite flowering stove plants. Again, too, the flowers are produced at a season when they seem to be doubly welcome—namely, the autumn, October and November, and lasting for several weeks, their value in a stove cannot be too highly rated. Many very distinct handsome plants are contained in the Melastomad family; but, imposing as some of these are, *Medinilla Curtisii* is likely to become one of the most useful garden plants of those yet introduced.

It is a native of Sumatra, and was introduced thence by Mr. Curtis for Messrs. Veitch & Sons a short time since, plants being exhibited at Kensington on October 9th, 1883, when a first-class certificate was awarded for it. The habit is bushy, as shown in the woodcut (fig. 90) kindly lent us by Messrs. Veitch & Sons. The leaves are oblong or elliptical, bright green, with midribs and veins coloured of a reddish tint. The flowers are borne in terminal and axillary clusters, the petals are creamy white, the sepals similar, and the dense central tuft of stamens purple—a pretty contrast. It is easily grown, needing only a moderately light open compost of peat and loam, and the temperature of an ordinary plant stove.

SPRING GARDENING AT BELVOIR.

PROBABLY no garden establishment in these times can vie with Belvoir in spring gardening. Those who only know Belvoir by name can form no idea either of the extent and exquisite arrangements which are there to be seen. Spring gardening there is quite distinct from that generally bearing the name; we find no formality, no geometrical design with flattened surface and unique precision, but, on the contrary, a wealth of floral beauty.

It was a glorious April morning when I started for Belvoir, where I soon found the enthusiastic gardener, Mr. Ingram, who never tires discussing spring gardening with others of like tastes. On entering the Castle grounds we ascend a winding path and the terrace garden is reached. Ahead the visitors can behold a picturesque landscape extending for many miles, and the floral beauties which surround him on all sides. Here my guide drew my attention to the Castle walls above us on our right, bedecked with Magnolias and Forsythia suspensa, the latter covered with bloom. Passing along we enter the Castle garden, in which, considering the few plants employed, the effect produced is marvellous. Conspicuous as a main feature is *Saxifraga ligulata*, one of the Megasea group or large-leaved Saxifragas, in grand masses, and spikes of its rosy-red blooms 15 inches high, a telling plant, and in front of this is a *Cardamine grandiflora*; the white is good and remarkably early, and plants having these qualities are by no means common in early spring. *Myosotis dissitiflora*, which holds its own against all comers, and the intense blue of the Siberian Squill, an exceptionally dwarf form of *Arabis albida*, together with overhanging masses of *Aubrietia græca grandiflora* were very handsome. Other beds in this garden were filled with Violet Marie Louise, and bearing hundreds of flowers. Here are also to be seen *Anemone coronaria*, some remarkably fine early Cowslips,

which Mr. Ingram recognised as *Primula macrocalyx*; these produce excellent effect, and are the outcome of continually selecting the earliest and best. The most noteworthy of other plants used in this garden are *Doronicum austriacum*, *Primula auriculæflora*, with rich crimson maroon flowers, Hyacinths and Tulips, good clumps of *Helleborus orientalis*, *Narcissus* in variety, and many more. Almost unique in effect are mounds of *Saxifraga muscoides atropurpurea*, which was just bursting into bloom, nestling in a carpet of the downy leaves of *Antennaria tomentosa*. One large bed had *Polyanthus* and red Hyacinths as a centre, next a band of *Euonymus*, then *Primula auriculæflora*, and double crimson Daisies. Some handsome tufts of *Hepatica angulosa*, though its season of flowering had passed, are worthy of special note, as being probably the most attractive and largest flowered species, and at the same time the earliest.

We turned to leave this delightful spot with considerable reluctance. Not the least worthy of note are the grassy slopes and rising banks

We next ascended a winding path, rugged as the mountain side, and in advancing from ledge to ledge something new was constantly coming into sight. On all sides are hardy Heaths grouped in small colonies, *Helianthemums*, the purple form of *Corydalis solida*, *Cardamine*, *Pulmonaria*, *Doronicum*, *Gentiana tinctoria* for later bloom, banks are wild with the Wood Anemone (*A. nemorosa*), and Primroses; while the spring Navewort (*Omphalodes verna*) and its white variety are in the greatest profusion. Few know the splendour of these charming plants, and what can vie with the intensity of the Gentian blue of the typical species?

Descending a grassy slope we noticed a powerful fragrance produced from a fine bush of *Azara microphylla*. Next we saw the ever-flowering *Primula obconica*, which promises to be among the foremost of the genus, *P. rosea* and the striped Squill (*Puschkinia scilloides*), the colouring somewhat fainter than usual, consequent on the age of the flowers; this is still a rare and charming plant. Then we saw the lovely Anemone *Robinsoniana* and *A. blanda*. Here also was *Narcissus minimus*

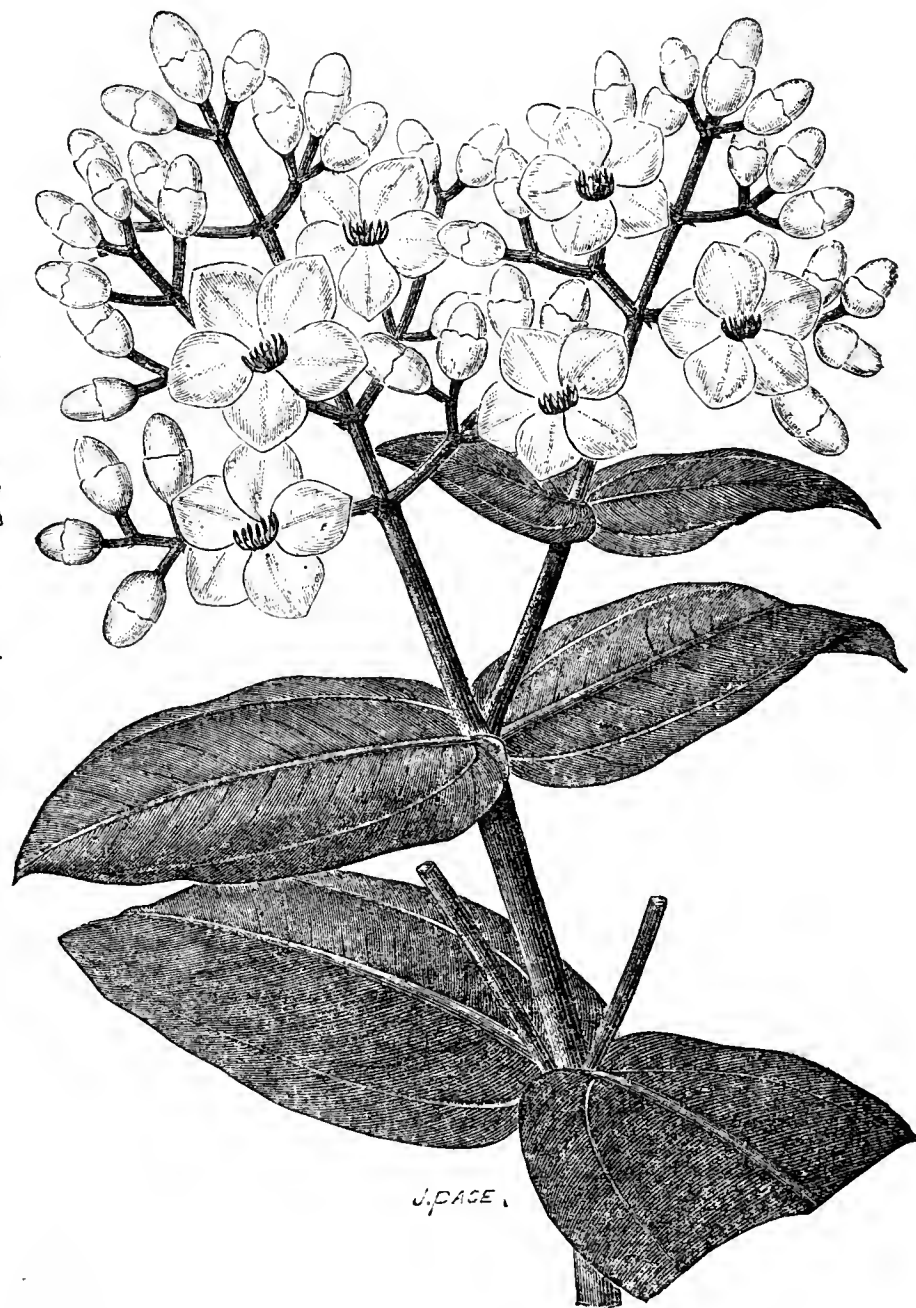


FIG. 90.—MEDINILLA CURTISI.

which are viewed from this elevated position, and below in the valley are to be seen groups of *Bambusa Metake*, probably the hardiest of all evergreen Bamboos; *Azalea mollis* in great variety, *Spiræa Thunbergii*, *Berberis Darwini*, all in perfection; and crowning one of these slopes the crimson trusses of *Rhododendron Jacksoni*. On one of these banks Mr. Ingram has already established many choice plants; on the one in question *Narcissi* predominate, having for companions *Crocuses*, *Snowdrops*, *Scillas*, *Anemone apennina*, the lovely *Chionodoxa*, and others to succeed, with sheets of *Myosotis dissitiflora* at every turn. Charming everywhere and flowering profusely was the Snow Glory, though few seem at present to realise its value. Happily, however, Mr. Ingram is not of that number, for already has he established it on semi-wild banks with charming effect, and where he intends it to seed at will, the result of which in a few years will be worth a journey from the remotest parts of England to behold. No plant of recent introduction is so well adapted for naturalising as this. It cannot be had in perfection in pots, for which purpose it has been so strongly recommended; it must have freedom, and if allowed to seed in the border or a sheltered position on the rock will soon surpass any other spring bulbous plants at present in cultivation.

just passing out of flower, and many others too numerous to mention. Close by, in a newly established peaty bed, were *Cypripediums* springing up, *Trilliums*, *Gentianas*, and a lovely show of the golden flowers of *Anemone ranunculoides*; and on the grass were groups of Ferns, *Spiræas*, and *Saxifraga peltata*, all of which will play their parts through the coming summer months.

There is also a rich collection of plants in Mr. Ingram's reserve garden, which cannot be fully described. *Narcissi* is in abundance, including the rare *minimus*, *Chionodoxa* by hundreds, *Anemone coronaria* (single and double) with their fiery heads, *A. fulgens* in plenty, and likewise *A. Robinsoniana*, *A. blanda*, and *A. apennina*. Of *A. blanda* Mr. Ingram annually raises many seedlings, some of increased size and vigour. Among many others worthy of note may be mentioned *Tropæolum polyphyllum*, not content with its allotted space in the bed is springing up abundantly in the walks. It is in this garden that every fresh arrival is thoroughly tested before it becomes entitled to a place in the spring garden.

Finally, what a boon is all this to the outer world, who, by the gracious permission of the noble owner of Belvoir, are allowed to inspect such a paradise of flowers. They come by hundreds, a fact alone which

speaks of the high appreciation in which it is regarded, affording satisfaction to the untiring energies of the gardener, Mr. Ingram, who is ever ready to welcome and instruct all lovers of hardy plants.—E. JENKINS.

ROSES IN THE AZORES.

THE accompanying Rose pods are from gardens in the islands of St. Michael's, Terceira, and Fayal in the Azores. Out of a large collection made by me during the past winter (the seeds without pods weighing over half a pound) I have selected these for their size, in order to give some idea of the strength of the plants which have produced them.

Some are of sorts I found unnamed, the others consisting chiefly of Teas Cloth of Gold, Madame Willermoz, Safrano, and Souvenir d'un Ami. On my way home I had an opportunity of showing the entire collection to a number of German gentlemen (principally planters) returning from Brazil, and they informed me that they had not seen such large Rose pods in Brazil. One or two Scotch gardeners who have seen them have also been surprised at the size of the pods. As some of them have now been collected two and three months they have of course shrunk considerably.

It will amuse your readers to know that I have constantly been asked whether these Rose pods were not small Apples.—ALEXANDER HILL GRAY, *East Ferry, Dunkeld.*

[The pods are very fine indeed, and we have little doubt are those of the Japanese Rose, *Rosa rugosa*, a spray of which was figured on page 293, vol. iii., third series, of the Journal, the issue of September 29th, 1881.]

ROYAL HORTICULTURAL SOCIETY.

MAY 13TH.

THOUGH the exhibits were less numerous than at some previous meetings this season, a beautiful display was provided in the conservatory, the Roses forming an exhibition alone. Calceolarias and hardy flowers were also in good numbers, the rare plants keeping the Floral Committee fully employed for a considerable time.

FRUIT COMMITTEE.—J. E. Lane, Esq., in the chair. Present—Messrs. J. Ellam, Phillip Crowley, G. T. Miles, S. Lyon, J. Burnett, G. Bunyard, C. Silverlock, A. W. Sutton, W. Paul, G. M. Breese, F. Rutland, J. Lee, H. J. Veitch, J. C. Mundell, and G. Goldsmith. The principal exhibit, and an extremely meritorious one, was that from Mr. Coyst, gardener to C. H. Wood, Esq., Newbold Revel, Rugby, which consisted of six handsome Melons, beautifully netted, of even but moderate size, flesh deep, and flavour fairly good for such early fruits. The variety is a cross between Conqueror of Europe and Scarlet Gem, and the cultural commendation awarded was well deserved. Mr. Ham, The Gardens, Mountains, Hildenborough, sent samples of a fine Broccoli with solid white hearts. It was a selection from Leamington, which was sown with Suttons' Late Queen and Cattell's Eclipse in the middle of June, 1883, and came into use at the same time as Late Queen. Mr. Ham finds Cattell's Eclipse the latest of the three, with fine solid hearts. A vote of thanks was accorded to Mr. W. Divers, The Gardens, Wierton House, Maidstone, for a dish of Ashtop Fluke Potatoes and a collection of Rhubarb of good colour. Mr. B. S. Williams, Upper Holloway, showed fruits of an early Melon named Basing Park Hybrid, which were of moderate size, globular in form, with the flesh fairly deep and of a rich yellow colour. Mr. C. Turner sent a dish of well-kept Winter Pearmain Apples, and Messrs. Lane & Son, Great Berkhamstead, showed two dishes of Apples—Galloway Seedling and Lane's Prince Albert, the latter being especially good. A specimen contrivance for assisting in bunching Asparagus was shown by Mr. H. Eldridge, Chesterfield Park Gardens, Saffron Waldron. It consisted of two flat pieces of wood secured together by hinges, the shorter one at right angles with the other. In the lower longer piece several holes are bored, in which pegs are placed to regulate the size of the bundle, the end piece keeping the heads all even, and the bundle is then readily tied.

FLORAL COMMITTEE.—Section A.—John Fraser, Esq., in the chair. Present: Rev. G. Henslow, Dr. Maxwell T. Masters, and Messrs. E. Hill, J. O'Brien, J. Hudson, J. Woodbridge, H. Herbst, J. Laing, H. Ebbage, and T. Moore. Section B.—Shirley Hibberd, Esq., in the chair. Present: Messrs. H. Bennett, W. Bealby, G. Duffield, D. C. Lathbury, H. Cannell, W. B. Kellock, and H. Turner.

A group of Roses such as that contributed by Messrs. W. Paul & Son, Waltham Cross, at this meeting is very rarely seen in May, and the gold medal adjudged for it by the Council was only a fitting recognition of its merit. About seventy plants were staged, varying in height from 3 to 5 feet, and in pots from 10 to 18 inches in diameter, while twenty large exhibition boxes of cut blooms placed along the front served to complete a group which for freshness, colour, and fragrance could have scarcely been surpassed. The plants were in extremely vigorous health, the foliage rich green, and well developed, the blooms mostly of good substance, but in a few instances, owing, no doubt, to the sudden heat of the past few days, they were a trifle too full; however, there was abundance of fresh bright buds and half-developed blooms. Numerous varieties were represented, and amongst them were some fine examples of Ulrich Brunner fils, with large rich rosy crimson blooms; Queen of Queens, bright and beautiful; Madame Lelievre Delaplace, a comparatively new variety with broad petals of a rich rose tint; Charles Lefebvre, extremely handsome, unsurpassed in colour; Marguerite de St. Romans, a globular bloom with shell-like petals, pale pink, of good substance; Crown Prince, a pretty Rose, especially in the bud, deep crimson, occasionally with a scarlet tinge; Mdle. Emile Fontaine, bright crimson scarlet, free; Etienne Levet, Masterpiece, and Madame Montels were also notable. A seedling Hybrid Perpetual of dwarf habit, and said to be valuable for bedding, was included in the group. The blooms are not of first-rate form, but of a rather pleasing rose tint, and are produced in great numbers. The Noisettes, Solfaterre and Rêve d'Or, were fine, the general favourite, La France, being represented by several plants bearing from eighteen to twenty-four large blooms. The plants were tastefully arranged

in the western portion of the conservatory, where they occupied considerable space.

Next in importance to the Roses were the Calceolarias, of which two beautiful collections were staged, and for each a silver Banksian medal was awarded. By far the most tastefully arranged was that from Mr. May, Dyson's Lane, Edmonton, in which a suitable proportion of healthy Adiantums were employed, together with a margin of wonderfully strong *Isolepis gracilis*. These formed a pleasing foil to the richly coloured flowers of the Calceolarias, and showed them to much better advantage in consequence. The plants were dwarf and compact, bearing fine heads of diversely coloured blooms, self or spotted, in great variety. It is evidently a useful strain, and well adapted for market. The other group was from Mr. H. B. Smith, Ealing, whose skill as a grower of such plants is well known. They were all in good health and admirably flowered, but their beauty as a group was much lessened by the absence of foliage plants. For richness of colour this strain is admirable, and the flowers also are well formed, full, and neat. Much improvement has been effected amongst the Calceolarias grown for market of recent years; they are now much more compact and dwarf than formerly, and though the heads of flowers are not quite so large, the first-named characters are of the most importance.

Hardy flowers constituted another attraction of equal interest to the preceding, and again were silver medals awarded for two representative collections. Mr. T. S. Ware, Tottenham, had a very choice and beautiful selection, prominent amongst which were several varieties of the handsome Tree Pæony, *Pæonia Moutan*, the large imposing flowers being of several shades of rose or crimson, differing but slightly, though all were beautiful. *Erigeron aurantiacum*, with large dark orange flower heads, was especially noteworthy; other good plants being *Linum flavum*, with abundant pale yellow flowers of good size for a hardy Flax; the Irish Butterwort (*Pinguicula grandiflora*), a charming little free plant with violet purple flowers; the creeping *Lithospermum prostratum* with its purplish blue flowers, so pretty on a rockery; the scarlet dwarf Pentstemon-like plant *Ourisia coccinea*; the very distinct shrub *Eurybia Gunni*, of which the white flower heads are so suggestive of the shrubby autumn-flowering Asters; several *Fritillarias*, *F. pyrenaica* being especially notable for its recurved petals; a host of charming Daffodils, still fresh and beautiful; and a pot of the pretty *Houstonia cærulea alba*. The collection of choice named Tulips (*bybloemens*) must not be omitted, for they were greatly admired, and formed a very pretty addition to the group. Messrs. Barr & Son, King Street, Covent Garden, principally exhibited Daffodils, and it was surprising what a number of varieties were still in bloom. The N. poeticus forms, such as *ornatus* and *poetarum*, were unsurpassed in their section. N. bicolor and its variety *primulinus* were good. *Abscissus*, *Nelsoni*, the double *Codlins and Cream*, *Barri conspicuus*, *incomparabilis expansus*, and many others were very attractive. Of the general collection, Anemones, Irises, Tulips, and Scillas were the chief features, several pretty varieties being included, such as the white, pink, and blue forms of *Scilla nutans*, and the Emperor and Empress varieties of *Scilla campanulata*, which are distinguished from the type by their larger flowers.

The Japanese Maples were much admired, and considering the elegance of these plants and their hardiness in most parts of England, even as far north as York, it is surprising that they do not become more popular. Messrs. J. Veitch & Sons, Chelsea, had a collection of distinct and graceful varieties, several of which were certificated. The best were *Acer polymorphum septemlobum elegans purpureum* (an appalling name), which has neatly divided purple leaves; *ribesifolium* with green close leaves; *laciniatum*, leaves deeply and finely cut; *atropurpureum*, dark purplish red, and *japonicum aureum*, pale golden yellow. With these also were grown the bright rosy salmon *Azalea rosæflora*, and a white variegated Dogwood named *Cornus brachypoda variegata*. The New Plant and Bulb Company, Colchester, also had a group of these Maples under their Japanese names. Some of the varieties were extremely pretty, and as a curiosity may be noted one plant upon which had been grafted no less than eight distinct varieties. For these groups bronze medals were awarded.

Alpine Auriculas, richly coloured and extremely fragrant, formed a pleasing group from Mr. C. Turner of Slough; and from about fifty, many of which were seedlings, the following were selected as the most distinct:—Mrs. Ball, crimson shaded, gold centre; Arthur Potts, violet purple shaded, cream centre; Ellen Terry, rich purple shaded, white centre; Queen Victoria, light crimson shaded, cream centre; Model, bright crimson shaded, cream centre; and Homer, crimson scarlet shaded, gold centre, free and very effective. A box of a dozen fine Maréchal Niel Rose blooms and two boxes of Carnation blooms were also contributed by Mr. C. Turner. Of the latter, the best varieties were Mrs. Maclaren, certificated; Mrs. Llewelyn, pink; Ruby, purple, very large; Rufus, scarlet; and Negro, maroon. All selfs except the first.

New or notable plants were also contributed by the following exhibitors, to whom votes of thanks were accorded:—Mr. B. S. Williams had several Orchids and other plants, such as *Cattleya Mossiæ magnifica* with large grandly coloured flowers; *Odontoglossum Alexandræ splendens*, a magnificent variety; *Masdevallia Veitchi grandiflora* with flowers 6 inches long and 2 in diameter; *Selaginella viridangula*, a tall-growing form with much-divided leaflets; *Osmunda javanica*, *Aralia reginæ*, and *Gloneria jasminiflora*, the latter bearing a number of its white flowers. From Messrs. Veitch came a fine plant of *Boronia elatior* profusely flowered, and a plant of *Gloxinia Purity* with pure white flowers. By the New Plant and Bulb Company a fine variety of *Cattleya Mendellii* named *Wallacei* was shown, the sepals and petals blush-tinted, the lip half crimson and white. T. O. Cunningham Graham, Esq., Dunlop House, Stewarston, Ayr, sent some fine spikes of *Vanda suavis*, variously coloured. Mr. Robbins, gardener to J. Vanner, Esq., Camden Wood, Chislehurst, showed a beautiful variety of *Odontoglossum citrosum* named *roseum*, which has large white sepals and petals and a bright purple lip. Sir Trevor Laurence, Bart., Burford Lodge, contributed plants of the profuse and attractive *Masdevallia rosea*, and an extraordinarily fine spathe of *Anthurium ferrierense* 6 inches broad and 7 inches long, the spadix being of similar length; the colour was a fine deep red. Messrs. Lucombe & Pince, Exeter, sent spathes of *Anthurium Schertzerianum giganteum*, a variety distinguished by its great size and deep colour. Mr. C. Noble, Bagshot, had some double and single Clematis flowers; Messrs. Laing & Co., Forest

Hill, some handsome tuberous Begonias; Mr. R. Phillips, The Gardens, The Deodars, Meopham, a collection of well-grown Gloxinias; and Mr. Gray Cragg, Crouch End Road, plants of a double Wallflower named Souvenir of the Duke of Albany. Mr. R. Dean, Ealing, showed specimens of the charming *Iberis gibraltarica hybrida* from the open ground, the lilac or white flowers being of considerable size and borne in dense heads. From the Society's garden at Chiswick pretty groups of Gloxinias, Ferns, Cape Pelargoniums, and a specimen of the strong-growing *Todea africana* were also contributed.

First class certificates were awarded for the following plants:—

Carnation Mrs. Maclaren (Turner).—A crimson bizarre with large substantial blooms; well formed and even.

Phlox setacea Vivid (Ware).—One of the dwarf Phloxes, very free with bright pink flowers having a deep red centre. An excellent variety, one of the best coloured forms.

Calochortus Benthani (Ware).—Very distinct and pretty, and well worth a higher award than the second-class certificate granted. The flowers are $1\frac{1}{2}$ inch across; the sepals tapering petals ovate, bright yellow, brown at the base, having on the upper surface a number of large hair-like appendages.

Mimulus moschatus Cloth of Gold (Dean).—A dwarf pretty flowering variety with large yellow blooms.

Odontoglossum Alexandræ delliense (Baron Schröder).—Chiefly remarkable for the dark chocolate prominent spots and the purplish tinge, as the flowers are of moderate size, though well formed.

Odontoglossum Alexandræ Ballantynei (Baron Schröder).—A handsome variety; flower large, petals and sepals broad, white, with a dark central blotch of chocolate; lip large and beautifully formed.

Brassia antherites (Williams).—A remarkable Orchid. The flowers are 7 inches in diameter from tip to tip of the sepals. Sepals and petals narrow, one-eighth of an inch broad, tapering, yellow, brownish black at the base. Petals $1\frac{1}{2}$ inch long. The lip is triangular, yellow, barred with brown. The spike was strong, over 2 feet long.

Saccolabium curvifolium superbum (W. Lee, Esq., Downside).—A richly coloured variety, the spike 6 inches long, and the flower of a clear reddish scarlet hue.

Cattleya Mendelli selbornensis (W. Lee, Esq.).—Very beautiful, sepals and petals pale purplish crimson, the latter very broad. The lip is delicately fringed, rich crimson at the point, gold and white in the throat.

Masdevalli Chelsoni (Sir Trevor Lawrence, Bart.).—A neat, freely flowering Orchid, the flowers somewhat like a small *M. Veitchii*, red scarlet, with a yellow tinge, a peculiar colour.

Phalænopsis sumatrana purpurea (Sir Trevor Lawrence).—Flowers 2 inches in diameter, white with bars of brown; the lip is a warm crimson purple. Very distinct and pretty.

Cypripedium grande (Sir Trevor Lawrence).—A wonderfully strong plant, which, owing to its fresh green leaves, is handsome even when out of flower. It had two spikes with three to four flowers each, the petals 9 inches long, narrow, and twisted, of a rosy tint. The sepals are large, of a very pale brownish colour with darker veins. The lip is greenish, very pale, with spots on the margin.

Asplenium horridum (Williams).—A bold and effective Fern, with fronds 18 inches to 2 feet long, pinnate, with dark brown or black stipes; pinnæ 4 to 5 inches long with rounded segments.

Zonal Pelargonium Belle Nauceinne (Laing).—A double salmon-coloured variety, bearing a remarkably large dense truss of full flowers.

Acer japonicum aureum (Veitch).—Very distinct; the leaf is 3 to 4 inches across, and has eight or nine short lobes neatly serrated.

Acer polymorphum septemlobum elegans purpureum (Veitch).—A dark-coloured form, the leaves having 5 to 7 deep, narrow serrated lobes.

Variegated Sycamore (C. Kershaw, Brighouse).—The leaves of this were of a reddish tinge, but as they seemed to be but half expanded, it was in the opinion of many persons scarcely worthy of a certificate.

SCIENTIFIC COMMITTEE.—Dr. M. T. Masters in the chair.

Aloe ferox attacked by Death-watch Beetle (*Anobium striatum*).—Mr. Maclachlan showed a piece of stem from Kew. The beetle apparently confined itself to the exterior dead wood, and was therefore presumably not injuring the living plant within. Kerosene was recommended as the best thing to apply.

Larvæ of Lepidoptera.—He also showed some very remarkable "cases," some exactly resembling a *Helix* or *Cyclostoma elegans*, others like that of the Caddis worm. They were made by species of *Psychidæ*, and came from Mpwapwa, about one hundred miles from Zanzibar.

Potatoes Growing in the Dark.—Mr. Houston exhibited some Potatoes in which the sprouts were short, and producing a dense mass of coral-like branches instead of developing into elongated shoots. It was probably due to pressure under confinement.

Canker in Service Tree.—Mr. Grote exhibited a bough of *Pyrus Sorbus* or *P. domestica* sent by Mr. Frere of Roydon Hall, Norfolk. As the cause was not apparent Mr. Grote will acquire more information and report upon it.

Plants Exhibited.—Mr. Loder showed the following:—A fine spike of *Fritillaria Thomsoni* grown in a cold pit; *Primula dolomitica*, *Muscari latifolium*, and *M. atlanticum* (?), *Scilla nutans* var. *bracteata*, &c. Those with doubtful names were referred to Kew.

Diates bicolor (?).—Col. Clarke forwarded a blossom, as it was doubtfully correctly named. Mr. Ridley undertook to report upon it.

Cankered Rose.—Mr. Plowright sent a branch of a Rose, requesting if any insect agency was present. Mr. Maclachlan could detect none, and the cause was apparently not fungoid.

Cæoma Laricis and *Ecidium Pini*.—He also sent specimens of these fungi. The former, Mr. Plowright observes, is new to this country. "It is very abundant at Lynn at the present time, hardly a Larch I have yet examined being free from it; but it is never very abundant in point of quantity." The *Ecidium Pini* he describes as being fairly abundant, and that it is the subsequent condition of *Coleosporium Senecionis*.

Puccinia suaveolens on *Carduus arvensis*.—Mr. Plowright sent specimens of this sweet-smelling fungus.

Rhododendron lanatum.—Several fine trusses of this Himalayan species were sent by Mr. W. Farrant from the Isle of Man. The blossoms were larger than those figured by Hooker. Mr. Mangles observed that he only knew of five large plants in this country, but the flowers sent were excep-

tionally fine. He also sent a truss of the sweet-smelling *R. Fortunei* and some of *R. niveum*.

NARCISSUS ABSCISSUS (N. MUTICUS).

ONE of the latest of all the Daffodils, and for that reason especially valuable, is the variety shown in fig. 91, which, though long an inhabitant of England, is comparatively unknown in many gardens. The engraving was prepared from plants in Mr. T. S. Ware's nursery at Tottenham, where several beds a week since were just becoming attractive when the majority of other Daffodils were either fading or quite out of flower. It is there grown under the name of *N. muticus*, which was bestowed upon the plant by Mr. J. Gay many years since, when it was described in a French botanical work. In most English collections, however, it bears the title of *N. abscissus*, which is a rendering of Parkinson's "clipt trunk" Daffodil, that is reasonably

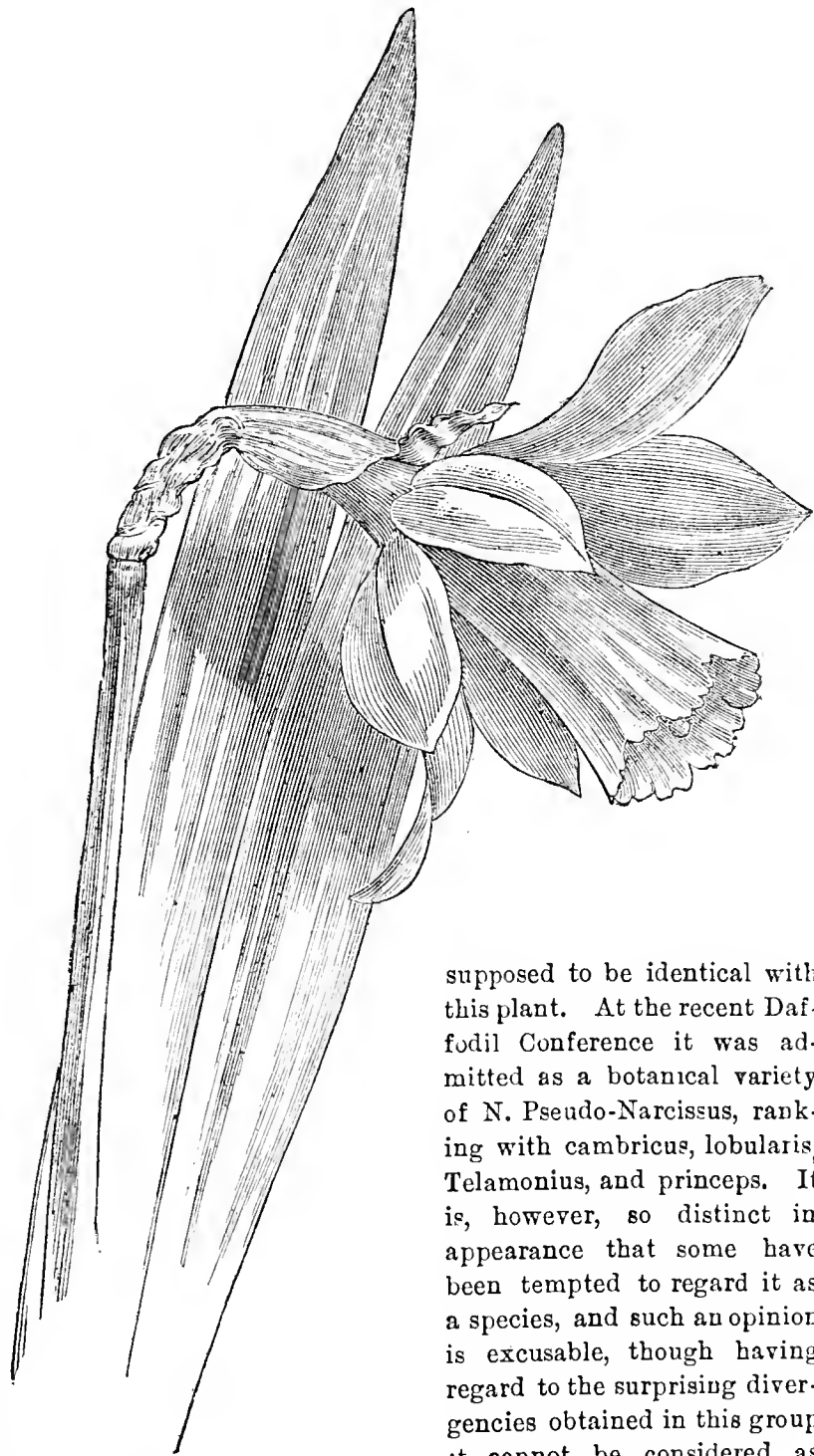


Fig. 91.—*Narcissus abscissus*.

supposed to be identical with this plant. At the recent Daffodil Conference it was admitted as a botanical variety of *N. Pseudo-Narcissus*, ranking with *cambricus*, *lobularis*, *Telamonius*, and *princeps*. It is, however, so distinct in appearance that some have been tempted to regard it as a species, and such an opinion is excusable, though having regard to the surprising divergencies obtained in this group it cannot be considered as more than a variety.

No special treatment is needed; any ordinary garden soil suits it, and with very moderate care it will grow and flower as freely as could be wished. The blooms are pale yellow, the petals lighter than the crown, which is remarkably long, straight, and tube-like.

ENGLISH GIANT OAKS.—In an article by Mr. W. Senior in Cassell's "Picturesque Europe" on "The Forest Scenery of Great Britain," he states that at Welbeck there is the Greendale Oak, an Oak estimated to be by one authority seven hundred, and by another one thousand five hundred years old. This Oak is probably the Methuselah of his race, although it may be noted that there are new forests which do not, through their local historians, advance plausible claims for a like distinction. The Greendale Oak, nearly one hundred and fifty years ago, was deprived of its heart by the eccentric desire of a former owner to make a tunnel through the trunk

This novel piece of engineering was effected without any apparent injury to the tree; an opening was made through which the Duke of Portland drove a carriage and six horses, and three horsemen could ride abreast. This arch is 10 feet 3 inches high and 6 feet 3 inches wide. A cabinet made from the excavated Oak wood for the Countess of Oxford is one of the curiosities of Welbeck Abbey (the seat of the Duke of Portland). It is ornamented with a representation of the grand old tree, which is now shored and supported against the elements, before which it must ere long succumb. The Spread Oak of Thoresby extends its arms over 180 feet of ground, and can give shelter to one thousand horsemen. In the hollow of Major Oak seven persons have dined with comfort, and that is of course impossible without unrestricted elbow-room. This tree is remarkably perfect in form, the true type of a sturdy Oak that is still prepared to brave the battle and the breeze. The Parliament Oak is a more decrepit patriarch of Sherwood Forest; it is supported by friendly artificial aids, and its trunk is now split in twain—symbol, it might be said, of the Government and Opposition, which are the life of the system whose name it bears.—(*Forestry.*)

CATS IN GARDENS.—Everybody who has a garden knows how attractive and fascinating some plants are for cats—such as Valeriana Phu and Nemophila. Can any of your contributors give me the names of any plants, perennial or annual, to which cats have a repugnance, and which would tend to repel their constant invasion of my flower beds?—G. O. S.



HARDY FRUIT GARDEN.

Summer pruning.—This consists in removing the tender young lateral growths at the third or fourth leaf from the base to form fruiting spurs, and as it is usually done with a thumb and forefinger, it is somewhat incorrectly termed pinching. Let not beginners be misled by the term, for the shoots are not pinched or bruised, but are taken off with a clean nip. Pears, Plums, and Currants are all sufficiently advanced for the first pruning, but only strong healthy trees should be done; all weak or sickly trees should have the growth left entirely unchecked till health and vigour are fully restored. Young unformed trees require stopping both in branch and stem, as well as in the lateral or side shoots, our aim being to waste none of the main growths upon undue and useless extension, but to nip off the tips at every 12 or 14 inches to induce the buds to start into growth to furnish the stem with branches and the branches with spurs, so that when autumn approaches again the only clean unpruned growth will be the last shoots of the year. Let no time be lost, then, with young trees now, if till the middle of August we wish so to guide the growth that a gain of two years may be effected over what would happen if the growth were left unchecked. After that time we prefer to discontinue the nipping, and consider the advice often given to continue it throughout the season of growth as erroneous and mischievous, late nipping inducing much abortive growth, soft and unripened from buds that should remain dormant till the following spring.

Disbudding.—Do not stop all shoots alike. Some will be crowded, and then disbudding must be resorted to, and enough shoots removed to allow the full play of light and air around those which are retained and stopped. Here, again, sound judgment is requisite to enable one to discriminate between trees of robust and vigorous habit requiring extra space for each branch and spur, and those of medium vigour, where the growth may advantageously be left thicker. The fruit of Peaches and Nectarines is now set and swelling freely, disbudding may therefore be done—gradually where the foliage is much blistered, quickly where the shoots are healthy and strong. Retain no useless growth. Nothing can be more unwise than to lay in a number of lateral growths now, most of which must be pruned in winter. Our object is to keep the tree well furnished with fruiting wood over the entire space of wall assigned to it, and to supply new growth from a point as near the base as possible. Assist both fruit and wood growth with frequent waterings of sewage, tie and nail young growth as it gains length, and see that no noxious insects take to the foliage.

Now is the time to apply sewage freely among bush fruit and Strawberries; let this be done with no sparing hand, but take care that enough is given each time to reach all the roots. The master's eye is much required while this work is proceeding, careless or idle workmen often shirking the thorough performance of this and other work. Leaf, fruit, and branch are now in full activity of growth, making demands upon the soil that quickly exhaust its store of nutriment, hence our urgent advice to pour on sewage or liquid manure unsparingly to assist the growth and so promote its full development. Bear in mind how great must be the strain upon a tree or bush in full bearing; in the brief space of four or five months it has to mature a crop of fruit and to make new growth and fruit buds for next season's crop. Whether this be well done or not very much depends upon a full strong flow of sap from the time when root-action begins onwards throughout the season of growth. There

must be no lack of fertility in the soil, no drought, no diseased foliage, no crowded growth, no overcropping, all of these being matters which come fully within the scope of our work, and are mentioned as being preventible by the exercise of due care, skill, and timely forethought.

FRUIT FORCING.

Figs—Early Trees in Pots.—When the first crop is gathered, as will soon be the case from trees started in November, a return will need to be made to the treatment of trees swelling off their crops. Should red spider have appeared, which is not improbable, the leaves must be thoroughly washed on their under surface with an insecticide at a safe strength, and the trees forcibly syringed twice a day. The loose portion of the mulching can be removed, and short partially decayed manure supplied with clear liquid manure. Where the second crop has set thickly, as it will on free-bearing sorts such as Brown Turkey, Negro Largo, &c., which always force well, the embryo fruit must be thinned liberally, as it is important the trees be not too much exhausted by carrying a heavy second crop, or they will not rest early enough or be able to carry a good first early crop another season. Growth after this will necessitate frequent attention to stopping and training, as the best coloured and flavoured fruits are always produced on vigorous shoots fully exposed to sun and light.

Succession Houses.—When the fruit begins swelling a higher temperature and drier atmosphere will hasten the ripening, but care must be taken to afford liberal supplies of tepid liquid manure to the roots, and syringing regularly twice a day, as any sudden check will prove highly injurious to the fruit. As the crop approaches ripening it is not advisable to wet the fruit if it can be avoided, but a good atmospheric moisture can be secured by keeping the mulching, walls, and paths properly damped, and the moisture can be kept from injuring the fruit by maintaining a gentle circulation of air by the employment of gentle fire heat. In a hot and dry house the Fig soon becomes infested with red spider and scale, and the wood stunted, the trees rest because they are exhausted, and the second crop is weak and rusty in appearance; but fed liberally, ventilated freely with heat, and syringed each time they are cleared of the ripe fruit, and they will then keep healthy and able to carry good second crops of fruit—nay, they become perpetual bearers. To keep a Fig in continual bearing it must, of course, be constantly growing, and for this reason the extension system is eligible, as the leading shoots are allowed to extend without stopping until they reach the extremity of the trellis, when they are cut away to make room for others succeeding them.

Figs in Unheated Houses.—These, notwithstanding the recent cold weather, are showing plenty of fruit, and in the event of a fine summer will prove very acceptable in August and September. Figs in all cases should be confined to reasonable limits at the roots, and assuming these are inside the house, with the borders well drained with broken bricks and old mortar rubbish—materials upon which they seem to thrive—the treatment recommended for succession houses will apply to these; only, in cloudy weather the afternoon syringing should be dispensed with, whilst in bright weather it should be performed early, with the sun heat shut in to insure the drying of the foliage before night. In such structures the shoots should be trained a good distance apart, so as to admit light and air freely to the growths, and close stopping should be avoided, as it tends to the production of useless spray and late growths, which do not get properly ripened before the leaves fall. The safe plan is to procure short-jointed wood.

PINES.—Now that the sun has considerable power means should be adopted to fully utilise its best influences, but in doing so proper care must be bestowed on the ventilation, which, when there is the prospect of a fine day, should be attended to early in the morning, because there cannot be too much moisture about Pine plants, but it must be dispelled from the plants before powerful sun operates fully upon them. In order to maintain a good condition of moisture about the plants, moisten all available surfaces about the house freely whenever they become dry, especially at closing time, which should be sufficiently early in the afternoon to keep the temperature at 85° to 90° for some time afterwards. Syringing will be needed almost daily in bright dry weather, and when the plants are growing they should never be allowed to be without water in the axils of the leaves, as many feeding roots exist around the stems of the Pine plants, which can only derive support from the moisture in the axils of the leaves. Be careful not to let any plants become dry at the roots, and when needed give thorough supplies with some guano in the water or other stimulating agent, being careful to apply it in a tepid state, and avoid giving too powerful doses. In very bright weather a slight shade will be useful where the plants are in houses with large panes of glass for two or three hours at mid-day, but the thinner the better; all that is necessary is to prevent the sun from scorching the leaves or fruit. Employ no more fire heat than is absolutely necessary to maintain the requisite temperature for fruiting and other plants, 70° to 75° at night for fruiters, and 80° to 85° by day; other plants 5° to 10° less.

CHERRY HOUSE.—The recent sunless weather has somewhat retarded the fruit, but the most forward are now ripe, and the main crop very nearly so; therefore, with a view to give colour and quality, ventilate a little constantly, and whenever external conditions are favourable ventilate freely. Be careful not to wet the fruit, but maintain a moderate degree of moisture in the house by damping available surfaces occasionally. As the growths elongate and need tying-in do so, allowing plenty of room in the ties for the swelling of the shoots, and stop all growths not required at the fourth or fifth leaf. During cold sunless weather keep a gentle warmth in the pipes so as to allow a circulation of warm dry air, and it will also be needed on cold nights. Keep a sharp look out for aphides.

Strawberries in Pots.—At this season forcing Strawberries is under

the best of circumstances a matter of difficulty, both in keeping the plants clean and in having a proper supply of fruit. Arrangements should consequently be made whereby a succession of fruit can be secured, which can only be effected by plants kept moving to succeed each other in close order, whilst crops that are ripening in advance of the demand may be retarded by keeping them cooler. Much can now be done towards a late supply of forced fruit by bringing on the plants in cold pits, plunging them in ashes near the glass, and with plenty of room to allow of a free circulation of air, and from these plants can always be taken to fill the place of those ripening. Apply liquid manure at every alternate watering, and thin the fruits well as soon as set where extra fine fruits are wanted.

PLANT HOUSES.

Zonal Pelargoniums.—These should now be flowering freely in the conservatory, and will require supplies of weak liquid manure. The smell arising therefrom is often objectionable in such structures, and some reliable artificial manure may be applied in small quantities to the surface. Successional batches of plants must be kept dwarf and sturdy by having them close to the glass and giving abundance of ventilation. Young plants should be potted and stopped as they require it, and the usual number for late autumn and winter flowering should be propagated without delay. These may be inserted singly in small pots, and will soon be rooted if stood in a temperature of 60°. As soon as they are rooted pinch out the points of the plants, and as soon as they have again commenced growth place them into larger pots.

French and Fancy Varieties.—The earliest of these will now be in full bloom, and will be most acceptable in houses that have to be kept gay now the whole of the spring-flowering bulbs are over. Care must be taken that these plants are free from aphides before they come into bloom, for if subject to fumigation afterwards their flowers will fall. Pay every attention to the later plants, keep them near the glass to ensure dwarfness, and tie out the shoots to stakes. Those rooted some time ago should now be potted, and if the points of the plants were pinched out as soon as rooted they must not be pinched again, or they will not bloom satisfactorily.

Petunias.—Supply the plants now coming into flower with short stakes, or their shoots will fall about and look unsightly when in flower. As soon as the flowers are formed feeding should commence. These plants soon draw up weakly if not kept close to the glass and in a structure that is well ventilated, and when in this condition half their beauty is gone, for no plants look worse when badly grown than Petunias. Do not employ any shade, but grow them in the full sun, stopping and tying out the shoots as they need it. Young stock should be potted, and cuttings inserted for later flowering.

Cockscombs and Celosias.—The former, if sown as directed and placed in small pots, will now be showing their combs, and should be placed into 6-inch pots. One or two crocks at the base of the pots will be sufficient, for the plants must be potted as low as possible; for this purpose remove the lower foliage. After potting give slight bottom heat, and keep the plants close to the glass and in a night temperature of about 60°. It is important that they should be kept near the glass, even if they cannot be given bottom heat, or they will draw weakly, and from such plants large fine combs cannot be expected. Celosias sown at the same time will be ready for the same sized pots, but these should not be potted deeper than when in their smaller size. After potting place an upright stake to each, and syringe liberally to keep down red spider. Good loam, a third of leaf mould and manure, with a dash of sand will be found a suitable soil.

Mignonette.—Where the tree forms are grown as standards and pyramids for flowering in pots during the winter seed should now be sown. It is best to sow it in 3-inch pots which have been well drained and filled with a compost consisting of good loam, leaf mould, and sand. Sow a few seeds in the centre of each pot, and after watering them stand them in a temperature of 60°, and cover with glass until the seeds germinate. As soon as they are well up thin out the plants to one, leaving the strongest in the centre of the pots. To grow Mignonette for winter successfully the plants must be gradually hardened by the time they are in 6-inch pots, and must not be checked in any stage, for if their growths become hard or woody they seldom grow freely afterwards.

Roses.—Plants that have flowered must have every care and attention, and must not be placed out of doors, as is too often the case. They should have a light position in a cool house, being liberally syringed and watered until they can be safely hardened. If placed out direct from the forcing house their foliage is injured and destroyed, and instead of the plants increasing in size and strength for another year they will be feeble and only produce poor flowers, if any. Late batches that have still to flower should be well cared for and not be hurried forward, but if possible brought into bloom under greenhouse treatment. Roses dislike a close confined atmosphere at any time, and under such treatment form long slender flowering shoots that have not strength to support their blooms when fully developed. Although air should be given them liberally cold draughts must be avoided, or mildew will soon establish itself upon them. Those to flower just before the border plants should still have the protection of cold frames, but when fine during the day the lights may be thrown off. If these plants are coming forward too rapidly remove those in the most backward condition to a more northern position, which will retard them wonderfully.

THE FLOWER GARDEN AND PLEASURE GROUND.

Sowing Seeds of Perennials.—There are numbers of very serviceable

flowering perennials, the seed of which ought to be sown at once. As a rule we are apt to delay sowing till after the greater part of the propagation of the summer bedding plants is completed, and as a consequence many of the kinds do not have time to become sufficiently strong to flower as they should do.

Campanulas.—There are few more effective plants in the mixed border during the early summer months than *C. Medium calycanthema*, blue, and the white variety, *C. pyramidalis*. White and blue varieties are also remarkably showy, but are not perfectly hardy, and require to be wintered in cold frames. Fill well-drained pans with fine light soil, sow thinly, press the minute seeds into the soil, and very lightly cover with fine sandy soil. Water through a fine rose, cover the pans with a square of glass, place in a handlight or frame, and keep them moist, close, and shaded till the seedlings appear. When the seedlings are large enough to handle prick them off thinly in pans or boxes of fine soil, and when growing freely gradually expose the plants to all weathers. Before they are crowded plant them about 12 inches apart each way on a fairly rich border. In the autumn some of the strongest of the medium varieties may be potted for an early display under glass, the bulk of the two pyramid sorts being also similarly treated, some for flowering in pots, and the remainder returned to the borders in the spring.

Auriculas and Polyanthus.—Last season's seeds of these ought to have been sown early in April, while the seed saved this year may be sown directly it is ripe, at which time it germinates more quickly and surely. Sow in pans of soil as advised in the case of the Campanulas, and as it is rather late place the pans in a slight hotbed. The seed of both often germinates very irregularly, and it may be fully twelve months before all have started, consequently the soil in the pans must not be shaken out, but the seedlings as soon as they are large enough to handle should be pricked-off in pans of good sandy loamy soil and returned to the frames till of good size, when they should be planted out. They delight in a well-worked and fairly rich soil, the position best suited to them being shaded from hot sunshine. The Alpine Auriculas are principally grown in the open, and among these are many very attractive sorts. The Gold-laced Polyanthus is the most generally preferred.

Carnations and Picotees.—Where a large number of cut flowers are required a considerable number of seedling Carnations and Picotees should annually be planted out. These will yield a number of blooms during the season following sowing and planting, but it is the next season when they flower so profusely and to such an extent as to almost exhaust the plant, hence the necessity of annually raising more seedlings. A packet of mixed border varieties will sometimes produce 60 per cent. doubles, while the singles are frequently the brightest in colour and find favour with many. Sow the seeds in pans or boxes of good loamy sandy soil, cover lightly, water through a fine rose, cover with squares of glass, place in a cold frame or very gentle hotbed, and shade from bright sunshine. Directly the seedlings appear remove the glass, gradually harden them, and when they have formed their second leaves prick them off thinly or about 4 inches apart each way in boxes of fine loamy soil, and return to the frames till they are re-established. Finally transplant to a deeply dug bed or border, which will better suit them if it received a liberal dressing of loam from old Cucumber beds. The plants may be arranged about 9 inches apart each way, and must be carefully protected from slugs.

Aquilegias and Delphiniums.—These are usually sown on warm borders, but are with greater certainty raised in cold frames. The seed may be sown in boxes or pans of good soil, and the seedlings eventually be pricked-out on a good border and shaded from bright sunshine for a few days. They may be transplanted to the mixed border either in the autumn or spring. Delphinium formosum is one of the brightest and best, and this if sown early will flower the same season.

Wallflowers and Stocks.—There are no better known or more popular plants than these. This is as it should be, seeing how easily grown as well as hardy and free-flowering they are. Of Wallflowers the best we have grown is Veitch's Dwarf, a compact rich-coloured sort; and Covent Garden Blood Red is also very good. Harbinger is a good brown sort; and for bedding purposes especially the Belvoir Castle Yellow is much liked. The double German Wallflower produces large spikes of bloom, the majority of which are very double. The Stocks to be sown at the present time are the Brompton well-known hardy sorts and the Emperor, the latter not being perfectly hardy. All may be sown on a warm border, or if the soil and position be cold and unfavourable in handlights or cold frames. Draw the drills shallow and about 5 inches apart, covering the seeds with a little sifted light soil. Prick out the seedlings before they are crowded on a good border and about 6 inches apart each way. In this manner strong bushy plants will be obtained, which may either be transplanted to the flower beds in the autumn or be allowed to flower where they are. The Intermediate and East Lothian Stocks frequently stand the winter, especially if the position be well drained. They are extremely serviceable either for autumn or spring flowering. For the former they should be sown late in April on slight hotbeds, and for spring flowering June is quite early to sow.

Sweet Williams.—These are again becoming popular, and where well grown are very showy and useful. The single varieties are preferred, the seed to be sown at once on a warm border or under handlights, and be treated in every respect similarly to the Wallflowers. We prefer to plant in masses, and they thus prove surprisingly attractive.

THE BEE-KEEPER.

HUNGER SWARMS, FERTILE WORKERS, AND BEES TRANSFERRING EGGS.

A VERY common occurrence during the spring months is that of bees and queen leaving the hive. Such swarms are sometimes mistaken for natural ones, and sometimes termed hunger swarms. As far as my experience goes, not in one single instance did I ever see such swarms leave the hive from that cause. I always considered the exodus due to some defect in the hive, such as incipient foul brood, and more particularly when the interior of the hive was in a cold damp state. The bees, being unable to raise the temperature sufficiently, take the opportunity the first fine day and leave the hive, which is generally repeated should the bees be returned without the precaution of thoroughly heating and drying the hive. There is nothing better for this purpose, if the day be fine, than exposing the combs to the influence of the sun, but a few spare hives with dry and sweet combs kept over from the preceding summer will be more suitable.

Do bees transfer eggs from one cell to another? is a question of considerable importance in apiculture. There have been many assertions attempting to confirm that they do so, but not one single case of proof nor anything likely to convince the observant bee-keeper has ever been adduced by the advocates of such a theory. On the other hand, I have made a searching inquiry of the first experimentalists of the day, and not one can make the assertion positive. I have myself devoted much time over a long term of years, sacrificing hives and labour to discover if bees really transferred eggs, but in all my experiments I never observed bees transferring eggs. I am not prepared to say that it cannot be done, because I have transferred larvæ and had the satisfaction to see these nursed and hatched, but I do say emphatically that as yet we have had no proof from a reliable source that bees transfer eggs. The question may, perhaps, be asked, Did I never find eggs in a comb that I knew the deposed queen had not access to? To this I must answer in the affirmative; but in every case there were two queens or fertile workers, which is sufficient to account for the erroneous opinions held by casual observers.

A case of the kind mentioned in my apiary at present will illustrate that phenomenon as well as others. During last autumn, while clumsily manipulating a hive through ill health, I allowed a number of the bees to enter a Carniolian hive whose queen was killed by the stranger bees. Being unable to put it right it stood over the winter until a month since, when I deposed the unfertilised drone-producing queen, supplying the hive with eggs and larvæ from a Cyprian stock. The bees were reluctant to accept the Cyprian worker brood, preferring to raise queen cells over the drone brood, which I destroyed and added another piece of comb containing Cyprian larvæ, which they also rejected, as I found on examination a day or two after, as they seemed to be satisfied with a cell on the first piece of comb given. This cell had the peculiarity of not being a royal cell nor even a drone cell, but simply a worker cell a very little more convex on the seal than ordinary worker cells, and not sealed until at least nine clear days after the deposition of the eggs. Anxious to be accurate, and cognisant of the time of evolution, I examined it daily until it hatched, on the eighteenth clear day, a beautiful average-sized Cyprian queen. Meanwhile an examination of the combs betrayed many newly laid eggs and royal cells containing eggs or grubs in different stages of formation, and this more than a fortnight after the deposition of the queen.

The foregoing is sufficient proof, were such a thing wanting, that fertile workers and queens exist together; and queens raised in worker cells, which is not uncommon, is a cause of much mystery to the ignorant, and apt to cause some bee-keepers to form wrong conclusions. The extreme coldness of the weather has prevented the queen mating yet, but the drones are very lively and seem preparing for a wedding trip whenever the sun shines; and I am in hopes that one of these drones from fertile workers will fertilise the queen, which they are capable of doing, having had queens fertilised by such drones before. If all goes right with the queen I will let your readers know the result. Another thing in regard to the bees of this hive is that they are aged, no bee being hatched in the hive since the end of July, and to carry out the internal economy of the hive will be required for two months to come, which according to precedence will be alive at the end of that time.

The difference of opinions by apiarians on matters such as the above and apiculture in general must be very perplexing to

beginners in bee-keeping, but why should there be so many opinions respecting things so patent to the eye? Where it is opinion and surmise only, difference of opinion and controversy are quite allowable, but to discuss proven facts serves no good purpose further than it may bring subjects before the novice that would otherwise have escaped his attention. Truth and consistency must, however, be the rules that arguments are based upon. If the former is to be established we must, to accomplish that end, be moderate and not go to extremes. A medium path will always in all things accomplish most. Reflect for a moment on the advice, given by some, to save and unite condemned bees. This is very good, but these advisers teach that bees should be fed in autumn to induce young bees being bred as the old ones are extinct or are of no use by spring. Now what is the use of uniting bees in autumn if that were true? but it is not. Bees, if properly managed in autumn and rightly prepared for winter, are greatly benefited by the doubling process in autumn. Your excellent old contributor, "A Renfrewshire Bee-keeper," long since alluded to this, and later on Mr. Pettigrew advocated and ably carried out the same system; in fact it is the system which has been carried out in Scotland from time immemorial, which I may allude to some other time; but let the beginner remember, to be successful with bees he must assist Nature, never thwart it, and the less he performs of the artificial and superficial work the better. Preserve the lives of the bees by quiet throughout the winter and spring, then he will be gratified to see the bees living in summer that he united in autumn.

Before dismissing the subject altogether there is one part of very great importance I desire to mention—viz., the pages of this Journal during the late Mr. T. W. Woodbury's time teem with much good and reliable information; in fact, so much so that I feel satisfied and justified in saying that since the time of the death of that lamented gentleman and able apiarian no advance has been made in the general management of bees. There has indeed been a wider spread of the knowledge of apiculture, but the information has in many cases been taken from these pages, often without acknowledgment.

I shall mention only one subject now—viz., the Italian or Ligurian bee and other foreign varieties. I will not enter into a discussion upon the subject further than saying that the introduction of the Ligurian bee and other varieties has been an inestimable boon to bee-keepers. Both the pure breeds as well as the crosses, particularly the latter, have given the largest harvests of honey ever obtained in this country, and the idea that they do not work upon Heather and do not collect a surplus of honey or that they are liable to foul brood is incorrect. Were it the case, as some are of opinion, that the foregoing is true, the bees would have ceased to exist long ago. It must be with the bee-keeper and not with the bee that the fault rests, because neither the records of the above gentlemen and many others, as well as myself, can corroborate the assertions of these wholesale condemners. In almost every failure with these bees I could trace the fault in the smallness of the hive, or the stock was not far enough advanced to get the advantage of the honey season. These bees will not store honey unless the stock hive is sufficiently large to allow the queen full powers in her egg-laying. It must also be remembered that, though some imagine that one hive is as forward as another, it may not be so. Then in our short and uncertain honey seasons eight days make all the difference between a surplus of honey or not, so that a hive but a week behind may miss the glut when the one in advance obtained it.

Two important matters in the management of these bees I would strongly advise bee-keepers to attend to—viz., that of keeping them in large hives, without which no profit will be had; and secondly, be sure and have them forward in time to catch the honey glut, after which report particulars as to failure or success, so that all may be benefited thereby and come to one opinion not only as to varieties of bees but on the management as well.—A LANARKSHIRE BEE-KEEPER.

FOREIGN BEES.

HOPING this discussion may be of service to bee-keepers I add a few remarks to what has been already written on this subject. My knowledge of the various races is a practical one, and not gathered from reading any journal American or British. I was one of several who, like "Hallamshire," had hoped we had found a treasure in these orientalisks, especially as the Ligurians were deteriorating. We tried to learn their peculiarities, which the bees were not slow to teach us; and the unanimous conclusion we came to was that Cyprians—and we know they were genuine—cannot be handled with smoke any better than Syrians.

But questions of profit and management I regard for the present

as side issues; we are considering that of foul brood. The general opinion is that foul brood may and does often proceed from chilled brood. This I do not deny, but I am more inclined to the idea held by Mr. Cowan and many others, that it is epidemic; and if your hives are in a certain condition they may be affected while your neighbours' may escape, just as epidemics most readily attack unsanitary dwellings. The Ligurians, Cyprians, Syrians, all alike, by their restless marauding disposition get into a dysenteric condition that very speedily develops foul brood; and the great fault I have to find with the Cyprians and Syrians is that they are too fond of visiting their neighbours and so carrying their disease with them. We all of us found within forty-eight hours of our setting these yellow bees in our apiaries that all the other hives in the neighbourhood, some as much as half a mile from us, had a few of them.

The Ligurians once had the character for gentleness, but are now called by some, "demons," and, rightly or wrongly, I lay this to the door of the blood that has been transfused into them from the east for the purpose of improving their colour, and I believe their propensities for developing foul brood has the same origin. I have no interest whatever in praising or condemning any particular race of bees. I was once a hearty champion for these yellow beauties, and was very slow to confess my altered convictions; but I am not alone in this matter, and recently I met the only keeper of foreign bees I know at present in my immediate neighbourhood, and he said he was fast coming round to my way of thinking, as he had lost two stocks of Cyprians this spring in a dysenteric condition, while his Carniolians and blacks were doing well.—J. P. S.

TRADE CATALOGUES RECEIVED.

Auguste Van Geert, Ghent, Belgium.—*Catalogue of New Plants (illustrated).*

P. Van der Veld & Sons, Lisse, near Haarlem, Holland.—*Trade Catalogue of Dutch Bulbs.*

J. Linden, Ghent, Belgium.—*Catalogue of New and Rare Plants (illustrated).*

James Dickson & Sons, Chester.—*Catalogue of Plants for the Flower Garden and Conservatory.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Books (J. McK.).—It is doubtful if you would be able to obtain the particular edition of Withering's "British Botany" mentioned except from a second-hand bookseller. There is, however, an edition published by Simpkin, price 10s. 6d. If you require a good introductory work, Notcutt's "Handbook of British Plants," published at this office, price 3s. 6d., post free 3s. 8d., will prove serviceable to you, as the descriptions are clear and concise. (C. P.).—As an elementary work you will find Sir Joseph Hooker's primer on botany (published by Macmillan, price 1s.) very useful. Professor Oliver's "Elementary Botany," published by the same firm, price 4s. 6d., will serve for slightly advanced study.

Garden Sorrel (A. W., Sussex).—Undoubtedly there has been a "great mistake" if seed of the plant you have sent was supplied you for Sorrel. Possibly, however, Sorrel seed was sown but did not grow, and the weeds are the result of seed that was in the soil; however, be that as it may, the plant you have sent is not Sorrel, and the sooner you get rid of others like it the better.

Mushrooms (A Subscriber).—Your letter shall be forwarded to the individual in question, and you may possibly hear from him. We are unable, however, to give you any assurance on that point. You had better send your questions to us in writing; that is the only form in which we are able to give a guarantee that they will be attended to.

Pruning Fruit Trees (Inquirer).—The principles of pruning, as referred to by Mr. Luckhurst, apply to all forms of fruit trees, only in the case of trees on walls it is often requisite to encourage the growths of the lower branches and suppress those above, with the object of furnishing the wall

equally throughout. Your letter, however, shall be sent to the author of the article in question.

Disposing of Books (F. H., Oxon).—We can suggest no other mode for disposing of your books than by advertising them, briefly stating their condition, the published prices, with the prices you desire, and possibly you might find a purchaser.

Climber for the Back Wall of a Greenhouse (C. D.).—It is too much to expect one plant to fill a wall 17 feet long in one season, and your best plan will be to employ several. Heliotrope is quick-growing and useful. Lonicera sempervirens is another free-growing and pretty plant, which flowers throughout the greater part of the year. Some of the taller Zonal Pelargoniums would be suitable, with Cestrum aurantiacum and Sollya heterophylla. Cobaea scandens variegata and Rhodochiton volubile are rapid-growing plants, and both flower abundantly.

London Market Fruit Growers (J. C., Barnsley).—It is very difficult to procure the names and addresses you require, but the following include some of the largest growers both of indoor and outdoor fruits. The names of the districts in which they live could, however, only be obtained, though letters would probably find them:—Messrs. Mann, Wilmot, Norris, Smith, and Warren, of Isleworth; Poupart, of Barnes; Lodge, of Mill Hill; Smith, of Twickenham; and Sweet, of Leytonstone.

Salting Asparagus Beds (W. W. W.).—Salt may be applied at once in sufficient quantity to destroy any weeds that may be growing in the beds, and when further weeds appear apply salt again, and continue the practice throughout the summer. About three dressings usually suffice with us, and we always have good Asparagus and no weeds to exhaust the soil.

Select Single Dahlias (Cambridge).—The following are free-flowering and diversely coloured varieties, very useful for cutting from:—Alba, white; Canary Bird, yellow; coccinea, orange scarlet; gracilis perfecta, scarlet; lutea, yellow; Mauve Queen, lilac; Paragon, maroon; Sunset, crimson yellow, dwarf; Firefly, orange scarlet; Duke of Teck, lilac and yellow; Nora, bright pink; and Painted Lady, shaded rose.

Making Asparagus Bed (G. S.).—It is fully late for planting Asparagus; still we think if you have young plants ready for removal, and they are transferred to the bed quickly and carefully, not allowing the roots to dry in the least, they would, with attention in watering, grow very well. We should cut all the growths that are above an inch through the soil. If you have the roots to purchase and obtain from a distance it is quite another matter, and we cannot advise you to incur the risk of failure in ordering them now. The flower you have sent (No. 1) is Diplacus glutinosus, the other (No. 2) is Piptanthus nepalensis, which you will find figured on page 507 of the Journal, January 22nd, 1882.

Vine Leaves Decaying (W. W.).—The Vine leaves are very thin in texture and comparatively destitute of tissue, which indicates a deficiency of phosphates and potash in the soil, and an excess of nitrogenous matter. Has not the vinery also been kept too close? The evil, however, is mainly at the roots. Possibly these are too deep, and need lifting and placing in fresh soil. If not, and they are plentiful, also near the surface of the border, point in a liberal dressing of wood ashes and crushed bones, or sprinkle on the surface 2 or 3 ozs. of bonemeal and the same quantity of kainit per square yard, watering it in. We think also the Vines need earlier and freer ventilation.

Terminal Blossom Buds (F. J.).—When fruit trees are desired to extend blossom buds should not be permitted to remain at the extremities of the branches. At once remove them, shortening each branch to what appears a promising wood bud, also apply liquid manure to the roots and mulch the soil over them to retain the moisture. The trees have received a check by some cause, and are in a stunted and stubborn state. There is only one way out of it, and that is imparting vigour by generous culture. Such trees should not be allowed to bear, but everything should be done to induce wood growth. To provide leaders we have often had to cut a foot or more from the ends of the branches to where a healthy growth was seen to be starting.

Bouquet Dahlias (Idem).—The plants may either be secured to stakes or pegged down, the former being preferable for promoting quick growth and an abundance of flowers as early in the season as possible. The plants may be inserted 2 feet apart and secured to stout sticks at once, or they may be broken by the wind. They need rich soil and liberal applications of water, with mulchings of manure in dry weather. You will find some varieties grow taller than others, and by noting the respective heights this year you will be able to arrange the plants more effectively in the future. If you prefer to peg the growths down the plants should be inserted slantingly, or you will experience some difficulty in affixing them to the ground.

Plums Failing (Delta).—We can only account for the failure on the assumption that the weather was inclement when the trees were in flower, or at the equally critical period just after the fruit had set. The blossom is not more tender than that of Peaches, but these trees have the shelter of walls, which we presume your Plums trees have not. Plums expand their flowers earlier than the majority of Pears do, and on that account are sometimes placed at a disadvantage. You are by no means singular in having no Plums this year; we unfortunately know of hundreds of trees both of Plums, Pears, and Cherries that will be absolutely barren, although a short time ago they were densely clothed with blossom, which, however, succumbed to the bitterly cold winds and severe frosts that occurred in April. Perhaps your garden is somewhat low and damp, in which case the blossom of fruit trees is always more liable to injury than in higher and drier positions.

Planting Marechal Niel Rose (W. S.).—As we do not know anything about the arrangements of the house, nor the convenience for making a suitable border inside, we are scarcely in a position to determine the best position for planting; but this we know, that with an outside border covered with a frame 2½ feet wide we could grow the Rose satisfactorily. We should prefer stout plants on their own roots established in pots. These may be planted now or at any convenient time when the roots have fairly filled the pots and need more space for extension. Good soil,

tolerably strong, yet porous, careful watering and mulching the surface with manure, with judicious ventilation and scrupulous cleanliness of the foliage—neither insects nor mildew being permissible—are the chief factors in the successful cultivation of this grand Rose.

Eucharis amazonica (J. C.).—We believe that it has been authoritatively determined that there are not two varieties of this plant. What is regarded as the inferior form is simply degeneration arising from defective cultivation. This is not by any means the fault of the cultivators exclusively, but in numerous instances is the direct result of inadequate means for growing the plants well. It is impossible for us to indicate the cause of the failure of your plants without knowing somewhat of the treatment to which they have been subjected. Possibly they have been overpotted, and have not at all times had sufficient heat. Good turfy loam, with an admixture of crushed charcoal or wood ashes, well-drained pots, and a stove temperature, moist in the growing season, and the plants shaded from the sun, are the chief essentials in successful culture. Bottom heat is of great advantage in starting the plants after repotting, and they invariably succeed the best when the pots are filled with roots. Try the plants in fresh soil and smaller pots.

Insects on Rose (Wanderer).—The reddish-brown insect adhering to the stem is the large brown scale. This is objectionable enough and injurious to the plants, but is not the cause of the mutilated foliage. There are at least two enemies attacking your Roses, one of which may be a snail or weevil which eats the leaves, the other the scale that extracts the plant's juices through the stems. The scale may be destroyed by dissolving 2 ozs. of soft-soap in a gallon of hot water, than adding half a wineglassful of petroleum, and applying when cool enough to the stems with a brush. The plants may also be laid on their sides and syringed with the same mixture, provided it is done in a shaded place and the Roses are kept out of the sun for a day or two afterwards. You had better also search with the aid of a lantern for nocturnal depredators. We suspect your plants are in an enfeebled state by defective root-action, inferior soil, or some error in treatment, but on this matter we cannot speak conclusively on the evidence of a "specimen" nearly 2 inches long.

Seedling Alpine Auriculas (Idem).—If the trusses you have sent have been gathered from plants, four dozen of which are growing in a box 18 inches square, in which the seed was sown last March, you have great reason to be satisfied. If such trusses can be produced by plants so crowded, what may you not expect when they are strong and established in good soil with ample room for development? At once divide and transplant the crowded seedlings in good compost in a shaded place, a frame or under hand-lights on the north side of a wall would be suitable; or they may be potted and eventually transplanted where required to flower, either in a border or on rockwork where there is sufficient fertile soil for promoting and sustaining vigorous growth. We note they are border Alpines of the strain of the late Mr. Alexander Honeyman, and are better than we should have expected could be produced in the time and under the circumstances indicated.

Seedling Auricula (J. P.).—The name you suggest has not been appropriated, and you are quite justified in attaching it to your seedling. It is a white-edged flower, of which there are comparatively few of superior merit. Nor can we place this in the first class. Its pale tube is a defect, and the paste is somewhat angular yet very dense. The body colour, purplish black, also appears to run too much into the narrow edge; but by packing in dry cotton wool the meal was smeared over the colour to such an extent that the appearance of the flower was greatly marred. Grow the plant well, and send us flowers next year so packed that they arrive in the same condition as when they were cut. Though not perfect, it is yet the best seedling Auricula that has been sent to us this year.

Soil for Chrysanthemums (Z. Y. X.).—The basis of the compost should consist of rather strong turfy loam, with decayed manure added to the extent of one-sixth, a little less or more according to the quality of the loam. An admixture of wood ashes with a sprinkling of soot and bonemeal, say a 6-inch potful of each to a bushel of soil, would improve the compost. Charred soil is of great value, and you cannot err by subjecting at least a portion of the loam to the action of fire. With a well-prepared compost of the nature indicated you will not require to use sulphate of ammonia or artificial manure of any kind for some time. The mixture recommended on page 285 would be admirable for Chrysanthemums if applied at the right time—that is, when the plants need more support than the soil affords them. It is easy to err by over-manuring during their early stages of growth. We have seen plants ruined by too generous culture during May, June, and July. They grew most luxuriantly, but produced inferior blooms; but, on the other hand, many plants are injured by starvation. You must exercise your judgment in this matter, and we think you will succeed in your object. We are glad the Vines have improved. Early morning ventilation should be particularly attended to.

Nectarine Leaves Skeletonised (W. M.).—The injury to the foliage is neither caused by insects nor fungus, but is the result of defective root-action or a deficiency of food for maintaining the trees in a healthy state. Of this we have no doubt whatever, and if you lift the roots and place them in fresh loam with a mixture of calcareous matter, and at the same time accord the trees otherwise good management, they will produce very different foliage, stouter and greener, that will resist the effects of the sun. The transparent patches in the leaves show a deficiency of chlorophyll. There is, indeed, little or no substance there, and those weak parts shrivel and drop out. We have only once before seen a similar case, and the trees were completely restored by the means above indicated. If there is no fruit on the trees you may lift them at once, and keep the foliage fresh by syringing and shading until new roots form and take possession of the fresh soil; or the lifting may be done immediately the crop is gathered. If it must be postponed, the best thing you can do in the meantime is to apply liquid manure copiously to the roots, ventilate early in the morning, and in very hot weather shade the foliage slightly either by spreading netting on the glass or sprinkling it with limewash applied with a syringe. The trees have probably been overcropped. They are certainly in an enfeebled state, and urgently need renovation. An abundance of fresh roots working freely in good soil will have a magical effect, and if you can carry out our suggestions this summer you will probably have healthy trees next year.

Liquid Manure in Vinery (A Lady).—Liquid manure placed in the evaporating troughs in vineries is either injurious or beneficial according to the judgment that is exercised in its use. Strong guano water and highly heated pipes when the foliage is still tender and the Grapes quite small, and the ventilators left closed too long in the morning, would be very likely to result in the scorching of the foliage and the rusting of the fruit. Your safe course will be to wait until the Grapes commence swelling after stoning before using liquid manure, and then to leave the top ventilators slightly open at night, increasing the ventilation immediately the temperature commences rising in the morning. Then you may expect the ammonia in the atmosphere to prove beneficial.

Pelargoniums and Fuchsias for Autumn Flowering (Idem).—It is quite easy to have the plants flowering in October if you wish them by growing well any free-flowering varieties. Probably those you have will answer very well, and possibly if we printed a list we should simply name several varieties that you possess, and, besides, you give no indication of the number required, and we do not know whether you desire to grow six or six dozen. Grow the Fuchsias in frames in a shaded position in summer, removing the lights on favourable occasions from June to September, and especially at night for the benefit of the night dew; indeed, the plants will only require protection from sun and heavy rains. Some of the finest we have seen were grown outdoors during July and August, the pots partially plunged in ashes on the north side of a wall. The plants must be kept growing freely, repotting them as may be needed to ensure this, and watering and syringing them regularly. If the wood is allowed to get hard you cannot well retard them. Pinch the shoots as they extend 4 or 5 inches, and permit no flowers to expand till September. The plants must never be root-bound until they are placed in the pots in which they are intended to flower, or the wood will ripen prematurely. When the plants are near flowering clear liquid manure, such as soot water, will be very beneficial. The young plants to which you allude are quite amenable to the treatment indicated, and old plants that flower in July, if pruned slightly, repotted, and grown in the same manner, will flower again in the autumn. Zonal Pelargoniums grown practically in the same way, only in a sunny position, will flower equally well late in the season, young plants producing the finest trusses, old ones affording them the most freely but smaller. Plants that have flowered in June, then cut down, and a fortnight afterwards shaken out and repotted, will flower freely in the autumn. Young plants may be topped occasionally till the middle of August, and then have the flower buds picked off if earlier than you wish them. They must not be starved at any time, but be kept supplied with water as needed to promote healthy growth, giving weak liquid manure occasionally when the pots are crowded with roots and flowers are forming freely.

Names of Plants (Pantonian).—1, *Ornithogalum nutans*; 2, *Scilla campanulata*; 3, *Iris foetidissima variegata*; 4, *Pulmonaria angustifolia*. (J. H. E. C.).—*Grevillea Preissi*.—(East Fairleigh).—*Celogyne flaccida*. (G. A. M.).—The large flower is a good variety of *Cattleya Mossiae*. The small, white, fragrant flower is *Rhynchospermum jasminoides*, and the specimen with shining green leaves and white flowers is *Begonia semperflorens*. (E. M. C., Limerick).—Your plant is apparently a *Bignonia*, but we cannot determine the species without flowers. A large number of the plants of this genus fail to flower under cultivation in this country, though represented by strong, healthy, large plants. (M. H. R.).—1, Unrecognisable; 2, A variety of hose-in-hose *Polyanthus*. (Jane).—*Cerasus Padus*.

COVENT GARDEN MARKET.—MAY 14TH.

LARGE supplies of all classes of goods still arrive, prices remaining below their proper standard.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 5 0	Oranges	100	6 0 to 10 0
Chestnuts	bushel	10 0 0 0	Peaches	per doz.	6 0 12 0
Figs	dozen	4 0 6 0	Pears, kitchen ..	dozen	1 0 1 6
Filberts .. .. .	.. lb.	0 0 0 0	.. dessert	dozen	1 0 5 0
Cobs	per lb.	1 3 1 6	Pine Apples English ..	lb.	2 0 3 0
Grapes .. .. .	.. lb.	3 0 5 0	Strawberries .. ..	.. lb.	2 0 6 0
Lemon .. .. .	.. case	15 0 21 0	St. Michael Pines ..	each	2 0 8 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	0 9 to 1 6
Beans, Kidney ..	.. lb.	1 0 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions .. .. .	.. bushel	2 6 3 0
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes .. .. .	.. cwt.	4 0 5 0
Capsicums	100	1 6 2 0	.. Kidney .. ..	.. cwt.	4 0 5 0
Carrots .. .. .	.. bunch	0 3 0 4	.. New .. .. .	.. lb.	0 2 0 4
Cauliflowers	dozen	2 0 3 0	Rhubarb .. .. .	.. bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy .. .. .	.. bundle	1 0 0 6
Coleworts	doz. bunches	2 0 4 0	Scorzonera .. ..	.. bundle	1 6 0 6
Cucumbers .. ..	.. each	0 3 0 6	Seakale .. .. .	.. basket	1 0 1 0
Endive	dozen	1 0 2 0	Shallots .. .. .	.. lb.	0 3 0 6
Herbs .. .. .	.. bunch	0 2 0 0	Spinach .. .. .	.. bushel	2 6 3 6
Leeks .. .. .	.. bunch	0 3 0 4	Tomatoes .. .. .	.. lb.	2 0 3 0
Lettuce	dozen	1 0 1 6	Turnips .. .. .	.. bunch	0 3 0 0



THE SHROPSHIRE BREED OF SHEEP.

(Continued from page 376.)

We will now refer to this class of sheep as exhibited at the Battersea Show in 1862. This useful and rent-paying stock,

which is much sought after in Ireland, was for the third time shown in a distinct class, and quite kept up their character for symmetry, early maturity, great weight, lean mutton, and wool, which it had gained at the previous meetings at Leeds and Canterbury. However, in reverting to the former exhibitions we could find no animal at this exhibition equal to the aged ram two years three months and three weeks which took the first prize at the Warwick meeting, that being the best sheep of any breed or type we had ever seen, and we were informed belonged to Mrs. Baker, nor have we ever since a sheep of any breed or race to equal it in all points. It was, however, not of the South Down cross, nor could we ascertain the mixed races which it represented in so many important respects. Still we found this breed exhibited in grand form at Battersea by taking the best animals into consideration, but they varied very much both in character and quality, which made the task of adjudication a difficult one. We took size and early maturity as the first consideration; but taking these sheep on the whole we did not think them up to the average of some former years, and there was certainly not a perfect animal in Class 1 amongst the sixty shearling rams exhibited. In Class 2 there were only twenty-four animals in competition, but their high character quite compensated for the short number shown. The three prize sheep were wonderfully fine animals; and this only accords with our previous observation of the best-bred stock of the Shropshire tribes, for in all the meetings we have attended where the aged rams were shown in competition with other short-woolled sheep, which was the case previous to the meeting of the Royal Society at Warwick, they were superior in their weight for age and general points to the other breeds in competition as aged sheep, but they could not reach the valuable character of the Hampshire Downs as shearlings.

It is not very important whether this breed of sheep is an original one, for it is certainly an established one, and the type, style, and character can be perpetuated. This breed has risen into note steadily but surely, which is strong evidence of the general estimation in which they are held by graziers in the midland counties particularly, as well as in Ireland, and also in foreign countries to which large exportations have been made for several years past and purchased at large prices.

We will now describe the character of the breed, and it may be remembered that since the extraordinary exertions of the late Lord Chesham of Latimer to improve the Down character of the sheep, many of which as prizetakers have partaken so much of the South Down character in many respects as to induce the uninitiated observer to think that they were pure-bred South Downs. They combine the symmetry and quality of the South Down with the weight of the Cotswold; they possess the fattening tendency of the Leicester without their delicacy of constitution. Their tendency to fatten is connected with such a development of flesh and lean, that a remarkably marbled or mixed fat and lean meat is produced, which may be presented on any table in the kingdom, and especially at the banquets of the wealthy classes of society, where the excessive fatness of the Leicester sheep is particularly objectionable. The price of this mutton ranks with that of the South Down in the market, and when this is a fact, with sheep ranging from 35 lbs. to 40 lbs. per quarter, at the same time carrying fleeces of excellent quality, and weighing from 6 lbs. to 10 lbs. per fleece, it must be considered that such a breed is of great importance and value to the graziers and flock-masters. Crossing has been attempted in various ways, but with any long-woolled breed in admixture the quality of the mutton has deteriorated with a loss of hardihood and constitution of the progeny, and this cross also is not able to withstand the inclement weather of the highlands of the western counties and districts. For these reasons the Leicester cross is objected to.

Our observation of the style and character of the Shropshire sheep induces us to believe that the point of early maturity or weight of the sucking lambs, or those from six to nine months old, may not only be increased, but the quality also by a cross between the Hampshire Down ram and the Shropshire ewe; for it is well known that in the shearling ram classes, when the two breeds were exhibited in the same class at the Salisbury and Chester meetings of the Royal Agricultural Society of England in 1857-58, that the Hampshires were superior to the Shropshires, but in the aged class there were instances in which the latter beat the Hants Downs. Quite independent of this question of early maturity there is another of vast importance, for in mating the Shropshire ewe with the Hampshire Down ram we should expect the increase of the number of lambs would be great. We could not put the number of lambs obtained from the Hampshire Downs at more than a lamb to each ewe, whereas the Shropshires cannot be put at less than 125 lambs to the 100 of ewes. We

shall, however, farther on give information relative to the increase of certain flocks, and which will prove our case in regard to the great increase of lambs to be reared from the cross-breed we have referred to.

In some cases a cross with the Cotswold has been tried, but it has not been received with more favour than with the Leicester, nor is there any reason to expect any increase of the number of lambs through the Cotswold cross than is obtained now by the Shropshire stock as now established. Scarcely any increase of weight has been gained by a Cotswold cross, but the quality of the Shropshire Down mutton has deteriorated in consequence. With ordinarily liberal feeding the Shropshire hoggets will weigh 20 lbs. per quarter at twelve months old, and at twenty months old will frequently average 35 lbs. per quarter through the flock. There is, therefore, no important advantage to be obtained by the increase of weight; in point of fact, if there had been, some strong reasons must have been shown to induce the breeders to sacrifice the point of quality, which is so prominent a feature in the jealous care which has brought the Shropshires up to their present position.

Young men commencing business as flock-masters should give their attention to certain facts which hold good throughout the great majority of breeds of sheep even in their improved character, for we may with little trouble trace it in the wild and original classes of mountain or forest breeds. For this reason, as a rule, we cannot obtain first-class mutton from long-woolled breeds of sheep, taking the meaning of quality as being a fair admixture of fat and lean meat in animals fed for the butcher. Although some animals will prove heavier at weight for age, yet if they are of a long-fleeced variety they are sure to yield an undue proportion of fat compared with the lean, at the same time it is not so well mixed and marbled. In support of this argument the Shropshires which Lord Chesham has exhibited in the improved form, both in shape and wool, as well as general character, have been so nearly of the same style and type as to be almost a counterpart of the pure South Downs; at any rate we have seen them in show pens, especially the ewes, when to a novice in these matters there was little to distinguish them, except that the Shropshires were larger and heavier, and the wool a little coarser and longer in the staple than that of the pure-bred South Downs. These observations we can recommend to the careful attention of breeders of some other short-woolled varieties. The attempt to obtain the greatest weight for age of their stock in some respects is regarded as an improvement of certain breeds, and we regret to say that judges of the present day are frequently apt to consider if form, &c., are equal on the day of exhibition, that those which will yield the greatest weight for age deserve, irrespective of quality, to be rewarded by the judges' approval, without reference to the original character of the breed. Let us name the Hampshire or west county Downs, which on their first being allowed a separate class at the Royal and other exhibitions, those most approved, although being of large size and great weights, were possessed of a style and wool nearly approaching that of the pure South Down. But within the past seven years especially, even those exhibited under the same denomination as Hampshire Downs, sheep having a deeper and coarser wool, have been placed before the highest bred and those yielding the best quality of mutton; in fact, the question has been decided by weight for age.

It is in this way that the character of the improved Hampshire Down, reared and selected with so much care for more than twenty years by the late Mr. Humphrys of Oak Ash, Chaddleworth, Berks, and afterwards maintained by Mr. James Rawlence of Wilton, Wilts, and others, with much strictness and care, have actually disappeared altogether in their pure and original form. Still some exist in various flocks, which are jealously guarded in the interest of their breeders, and may one day come to the front again in the hands of some intelligent and far-seeing flock-master, while those who are breeding their sheep with coarser wool and still exhibiting them as Hampshire Downs will not be able to control the movement brought about by the idea of weight for age, or in the pursuit of weight for age chiefly, will be found no better than deserving only to be merged and mixed with the Oxford Downs. One more observation upon this point we must make is that as it is said, and truly, that nothing ever stands still, but that it must either improve or recede, so it is with breeds of sheep; for it is almost impossible to retain the merit of quality in any breed of sheep if we attempt to improve them in their weight for age by growing longer and coarser wool. We have minutely stated these ideas, because they are as applicable to the Shropshire Downs of Lord Chesham's style and type as they have been in connection with the Hampshire Downs as bred by Mr. Humphrys.

We must now refer to the Shropshire sheep as they advanced

in public favour, and give quotations from the report on the exhibition of live stock at Wolverhampton by the Royal Agricultural Society of England in 1871, furnished by Mr. Jacob Wilson, the senior steward. He states, "In the very centre of their home district, and with so tempting a prize list as that conjointly arranged by the Council and the Local Committee, the Shropshire sheep came out in strong force—to the unprecedented number of 528 animals, though this was to a considerable extent composed of the numerous entries of ewes and lambs. This breed of sheep is rapidly extending its usefulness throughout the country, for to my mind there is no 'better rent-paying' sheep in existence, and I rejoiced to see them forming the chief and prominent feature in the Wolverhampton show-yard." The Judges' report states that "the all-aged rams were the most noticeable feature. In this class we found a large proportion of the animals of marked superiority, Mr. Evans of Shrewsbury and Mr. Mansell of Baschurch, Salop, both taking prizes in this class." In the class for shearling ewes we find Mrs. Beach of Brewood, Stafford, taking the first prize and beating Lord Chesham of Latimer, Bucks; in fact, Mrs. Beach, to have obtained prizes in the other classes for young stock against such a competitor as his lordship, has obtained a very high position, and there can be no stronger proof of the practicability of attaining the uniformity in Shropshire sheep that breeders have so repeatedly been urged to strive for than is shown by the animals exhibited by this lady. These important reports exhibit, in the most satisfactory manner the advance made by this breed of sheep up to the date of the Wolverhampton meeting in the year 1871.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are now fully engaged in preparing for sowing seeds for the Mangold, Carrot, and Swede crops, as the Potatoes are all planted. We have now been laying out and spreading farmyard manure on the fallows, and have ploughed and drilled the Orange Globe Mangold seed, and at this time we are looking forward for ploughing-in green crops, which is a great object with some farmers where valuable crops of cereal and pulse crops are grown. These are the most important and rent-paying products, together with the sale of hay and straw, the value of the latter to be expended in the purchase of manures, as fodder and litter will not be in so much request where no sheep are kept, but only growing young short-horned steers. All the Mangolds and Swedes will be stored away and cleared off the land in good time for the ploughing and sowing of Wheat in the month of October, still they are looking for a green crop to plough-in, besides the Mangolds and Swede greens, and therefore they should drill these crops at 30 inches between the lines on the flat. This will leave good space between the lines for interculture and preparing the land to receive the Turnip seed, which may be sown broadcast just before the second horse and hand-hoeing of the Mangolds, and when sown broadcast they will when growing not interfere with the Mangold, and at this distance the young Turnip plants also will get sun and air sufficient to give a fair growth of foliage, which is all that is required. Farmers should sow a sort which throws the most foliage for the purpose of ploughing-in, such as the Greystone and other luxuriant-growing varieties. Carrots may now be sown with the best chance of obtaining a plant, and they will be more free from the growth of weeds than when sown after a fallow if drilled at once, ploughing after Rye, Trifolium, or other green-fodder crops, especially if the short Red Intermediate sort is grown. The cost of the economy connected with this system is that it is so much less labour to lift them than the white Belgian or long Red Carrots; in many cases it is of so much consequential expense that many farmers object to growing Carrots of the long varieties. There is great economy in late sowing and of growing only the short varieties like James's Intermediate, for in certain districts they sell well in the vegetable markets, and also they are valuable as winter food for horses in any work in the towns as well as country. It is not too soon now, especially in the northern districts and Scotland, to sow Swedes; and when required for pulling and storing for cattle, instead of feeding on the land, they may be sown now with advantage in any district, and also they may be drilled at 30 inches, Turnip seed being sown and grown in the intervals with the same advantage and for the same purpose as above described in the culture of Mangolds. Where the seeds of Clover have not yet been sown on the Lent corn the sooner it is done the better.

Hand Labour.—Men are not much required at present, except in those cases where a fall of timber has occurred, in which case the sooner the timber is hewn and squared the better; the bark and faggots if not yet removed, especially on land under crops, may be with advantage cleared away as soon as possible. Burning compost heaps should be attended to immediately in order that the materials may be in a mellow and fit state to lay out after the hay from the pastures has been removed. On pastures also which may have been close fed by dairy cows or young stock during the summer, any such compost may be applied with benefit either just before or directly after harvest, for after being properly spread and chain-harrowed it will improve the growth of grass during the autumn immensely, and in early winter also with open weather and during seasonable rains. Weeding Wheat and other crops, especially

Clovers, should now be done. This has always been women's labour formerly, but in some districts it must now be done by old or infirm men or boys, greatly to the disadvantage of the former. In the chalk and other soils where Charlock abounds and proves almost an impossibility to eradicate it we recommend, where no couch grass is in connection with the Charlock, that it should be ploughed down and the land harrowed immediately, in order that another successive lot of seed may vegetate, and that also this growth may be ploughed in just as it is coming into bloom. This may be done with great advantage, or as much advantage as Mustard is now treated, and if three or four crops can be ploughed-in at varying depths the land will be manured, and if this plan be carried out, followed between two cereal crops, such as Wheat and Lent corn, the land would be permanently improved, for in the death and decay of the Charlock a vegetable humus will be formed, and permanently benefiting the land. At the same time by repeated deep and deeper ploughing the land may be ultimately freed from this seriously damaging weed if persisted in for several years in succession, and also during the growth of corn, using the implement drawn by one horse, called Koldmoo's weed-eradicator, which pulls off the heads of Charlock as it is drawn across the corn without injuring the cereal plants if done at the right time. In this way we accomplish several objects simultaneously—that of freeing the land from a noxious weed, and manuring the land as well as following it, under the operations and preparations of one or several years as may be necessary. We know nothing so effectual and economical as this plan if properly carried out.

Live Stock.—In all those districts where the horned Dorset and Somerset ewes are kept in the south-western counties it is now time on the breeding farms to select all the off-going ewes for sale in the autumn, to purchase some good South Down rams to run with the ewes, and if the ewes are retained in their wool, and not shorn until all the ewes prove in lamb, they will generally bring their lambs in the two best months for early lambs to fall—viz., October and November. On the sale of the ewes to be fed on the vale farms of the south and home districts they will be sure to command the highest price in the autumn at Weyhill and other fairs where these ewes are sold. On the breeding farms, however, and especially on the dry healthy limestone and chalk soils of the south-west counties, the ewes for breeding are generally mated with the horned rams, but not until the month of November. At the same time it should be remembered that, however requisite it is to have good ewes, yet the careful selection of rams bred from the choicest ewes of the choicest flocks in the district is a matter of the highest importance; in fact, it is seldom that sufficient care is used in this respect, even by those breeders who may have a stock of rare quality ewes, but to maintain these the rams always have an important influence in the succession, and much more than they are often credited with.

OUR LETTER BOX.

Preparing for Hay Ricks (S.T.W.).—In preparing a stand or steddle to build ricks of hay upon, it is a good plan to use some stout faggots, so that there may always be a free circulation of air passing through them at all times after the ricks are made. It is also a good method of protecting the bottom of the rick to make a trench about 12 inches wide and 9 inches deep all round to take away freely all water which drips from the eaves of the rick. Some method of protecting the hay which is being stacked is requisite, otherwise in the event of a sudden thunderstorm serious damage may occur. We consider the outlay for the purchase of a large sailcloth and poles is money well spent, and if the poles are erected so that at short notice the covering cloth may be available, no hay need be damaged whilst the rick is building. The size and shape of the ricks is a matter of some importance; for although large ricks to contain 30 or 40 tons may be best for the day, there being less outside and waste, yet, when the season is uncertain, 20 tons are enough for one rick, as it is more quickly secured.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				
1884.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		Rain
May.			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday	4	29.410	50.3	45.3	W.S.W.	46.8	58.4	40.3	102.4	36.5	0.013
Monday	5	29.486	52.0	46.9	N.	46.9	59.3	33.2	110.7	33.9	0.144
Tuesday	6	29.762	50.0	44.6	W.	46.7	60.3	36.9	103.7	33.4	0.055
Wednesday	7	30.079	51.6	45.7	W.	47.3	56.9	36.8	89.6	33.3	0.052
Thursday	8	30.060	56.0	51.1	S.W.	47.6	62.2	45.2	95.7	42.6	—
Friday	9	30.217	53.1	50.2	S.E.	48.6	66.4	47.3	107.4	44.3	—
Saturday	10	30.269	61.4	53.5	E.	49.7	71.4	43.0	114.2	39.2	—
		29.898	53.2	48.2		47.7	62.6	41.1	108.4	37.6	0.264

REMARKS.

- 4th.—Hail shower at 10.15 A.M.; generally fine after.
 5th.—Fine early, shower at 11.30, thunderstorm at 1.45 P.M., and showers later.
 6th.—Fine until 5.15 P.M., then showery till 8 P.M.
 7th.—Dull, with slight showers, fine at night.
 8th.—Fine throughout, but cloudy in evening.
 9th.—Fine and warm; lunar halo at 10.30 P.M.
 10th.—Splendid day, the first on which the temperature reached 70°.

The early part of the week cool, but the last two days warm, so that the average for the whole week is just the mean for the season.—G. J. SYMONS.



22	TH	
23	F	Crystal Palace Show, two days.
24	S	Royal Botanic Society at 3.45 P.M.
25	SUN	SUNDAY AFTER ASCENSION.
26	M	
27	TU	Royal Horticultural Society. (Committees at 11 A.M.) Fruit and Vege-
28	W	Society of Arts at 8 P.M. [table Show.]

DOUBLE ZONAL PELARGONIUMS.

AS far as actual beauty is concerned I freely admit that the single varieties of Zonal Pelargoniums are decidedly preferable to these, but for general utility they by no means equal the double, or rather the semi-double, flowering sorts. For affording a continuous supply of trusses during the late autumn, winter, and spring months the latter are invaluable. A few plants of each variety I shall recommend for winter flowering may perhaps be found in innumerable gardens, but this is a proof that they are not appreciated or dozens would be grown. We have by no means a great amount of house room, yet we contrive to give up one house to semi-double Pelargoniums from the end of September to the beginning of June, a late crop of Melons being grown in the meantime. All cannot devote a house to similar purposes, but there are many gardens where a much larger house might with advantage be occupied with Pelargoniums during the winter and spring months, while in smaller gardens part of a forcing house may profitably be given up to them.

CULTURE.—Their cultural requirements are very simple, and I shall only briefly detail them, the object of this paper being to induce others to commence their culture on a much larger scale. We find that the old plants cut back, repotted, and grown for winter do not prove so satisfactory as young plants, as they form too long-jointed sappy shoots, and these are not of a floriferous description. We raise a given number of plants each year, and also reserve a certain number of the best young plants of the previous season's rearing, and these are not cut back. In this manner we have plants of various heights, and which are necessary for effective arrangement. The cuttings are struck in heat during April, are stopped when rooted and commencing to grow, potted off if struck several cuttings in a pot, or given a shift if they are struck singly in small pots. They are kept growing in heat, always, however, in a light airy position, pinched back once or twice to make them bushy, and given another shift, this time usually into their flowering pots. Any good sandy loamy soil suits them.

Early in June the pits and frames are cleared of the summer bedding plants, and some of them are then filled with the Pelargoniums. Here they receive careful attention in watering and ventilation, and are kept from flowering. During dry weather the lights are drawn off, but I do not believe in the "baking" often considered necessary either for these or for the single-flowering varieties intended for the late autumn and winter display. Our aim is to keep them quite green and growing slowly, and if we do not secure quite so much bloom at first the trusses are much finer and more continuously developed. If it is advisable to protect or lightly shade them from very bright sunshine it is of still greater importance that the plants be sheltered from heavy winds and saturating rains.

Most of our young plants are flowered in well-drained 8-inch pots, and those reserved for next season's display,

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when removed from the forcing house in June, are hardened and then given a shift into 10-inch pots. One good stake is placed in the centre of each, and to this the principal branches are loosely tied. They are thus neither bushes nor pyramids, but more correctly pillars. These, too, are sheltered in deep pits as much as possible, and encouraged to form short-jointed yet healthy growth. At the outset, not having any large old plants, we struck six cuttings in a pot and grew these without stopping, this resulting in large serviceable specimens, as all the sorts are given to branching.

All should be housed by the middle of September and commence blooming at once. They will not be continuous-blooming in a greenhouse temperature, but succeed to perfection in a light forcing house, especially if stood on a staging over the hot-water pipes. A very high temperature and a moist atmosphere are more conducive to luxuriant growth than to floriferousness; we therefore never syringe or damp the house, and maintain a temperature ranging from 55° to 60° by night and 60° to 65° in the daytime, with a further increase with sunshine and air.

Plenty of room should be given, as I find that a few plants standing clear of each other yield more flowers than a greater number crowded together. Water is given carefully, especially during the dull winter days, when it is advisable to keep the plants slightly dry, or the growth will be too rapid and too soft to bloom properly. For the same reason liquid manure or a light top-dressing of some kind of artificial manure should not be given till it is seen the plants are losing colour for want of some fertiliser, and even then it is preferable to apply it in a weak form.

SELECTION OF VARIETIES.—Much depends upon the choice of varieties. I can only recommend five or six, and though two of these may be improved upon, as far as numbers are concerned they are ample. The most noteworthy variety is Guillon Mangilli, this being, according to my experience, superior to and quite distinct from all other sorts. It forms sturdy branching growth, will yield great numbers of immense trusses of bright crimson flowers all the year round. It is equally as well adapted for small pots as for large ones, is good for summer work, and one of the best for the markets, but the trusses, pips, and colour are best on the plants grown in heat. We frequently cut trusses of it 6 inches in diameter, the semi-double pips being proportionately large. The nearest approaching to it in habit is Mrs. Arthur Lattrey, a charming light pink variety, and which is one of the best for winter forcing. The older Madame Thibaut is of a deeper pink colour, and the trusses are smaller and more globular. This also is good for small pot and greenhouse summer culture, and with a fair amount of sunshine forces well. Madame A. Baltet was at one time relied upon for producing white flowers during the winter, and it has done us good service. It is, however, being supplanted by Candidissima plena, as we find this forces better, and the trusses of bloom, though smaller, are much whiter and less liable to become discoloured by sunshine. E. V. Raspail is the best scarlet we have, but this does not force particularly well, and I shall be glad if some of the readers of the *Journal of Horticulture* will recommend a good substitute. We had both this and Ludwig Ferchl particularly good during the late autumn and early winter months, and both are superior in every respect to the still popular Wonderful. Of flesh-coloured sorts I have grown Asa Gray and Louis Buchner, and am now inclined to give the preference to the former. Neither of them produces large trusses or grows so strongly as any of the above-mentioned sorts, but the colour finds favour and is wanted.

To further demonstrate the value of this class of Pelargoniums I may mention that, for the adornment of churches and other purposes, we cut nearly a bushel of fine trusses in a house 20 feet long and 12 feet wide, and yet left hundreds of others in various stages of development. I find them of great service for packing, dinner-table decoration,

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hand and buttonhole bouquets, while they are by no means to be despised for mixing in vases with other flowers or for specimen glasses. Indeed they can be utilised in so many ways that they are extremely valuable in gardens, and are deservedly becoming great favourites.—W. IGGULDEN.

A SELECTION OF VEGETABLES.

ONE of the most popular and useful prizes offered for competition at the meetings of local horticultural societies is for what is somewhat erroneously termed a collection of vegetables; but as the number of sorts to be shown is always limited, the title of this paper would certainly be the most correct of the two. But when a society can afford it there should always be two classes—one for an unlimited collection from large gardens of a given area, say from 2 acres and upwards, and another for a limited selection from smaller gardens. This would not only put competitors upon an equal footing, but it would induce many to exhibit in the second class who might otherwise not do so at all, from a mistaken idea that large gardens invariably produce the best vegetables. That large gardens do generally contain an abundant supply of good serviceable vegetables is undoubtedly correct, but the fact of the labour power being spread over so large an area not unfrequently militates strongly against the production of specimen prize-winning vegetables, especially when the rigid economy of hard times has caused a serious reduction in the staff, as is but too frequently the case now-a-days.

The healthy spirit of emulation to which such contests give rise should, and undoubtedly does, lead to a general improvement in the garden produce, and this is the true end and aim of the society. Most local shows are held as summer plenty ripens into the fulness of autumn, and fruit and flowers are most abundant; but after a month or two of hot dry weather vegetables are apt to be neither so fresh, crisp, or succulent as at midsummer. Well will it be now, therefore, to carefully consider ways and means which are generally available for the successful culture of, or rather for the maintenance of an unbroken supply of tender young vegetables during the heat of summer. Water, manure, and labour are our three indispensables, always to be regarded as an inseparable trio ready to our hands in due proportion, and which, if applied with due care and skill, render success a certainty.

PEAS.—These worthily come first as the most popular summer vegetable. It is not often that soil is either deep or rich enough to do full justice to them. Out of five gardens in which I practised only two had really suitable soil for the growth of full crops of late summer Peas. Trenches a foot deep, prepared as if for Celery, must therefore be resorted to in most gardens. If they were 2 feet deep the Pea roots would quickly reach the bottom, but a foot is a reasonable and fairly safe depth. Sow in the first and third weeks of June for a late August and September supply either Telephone or a similar tall-growing sort with large pods well filled with deep-green peas. If the weather is hot and dry, then water the seed well as it is sown, and cover with the warm moistened soil immediately. Germination will follow quickly and simultaneously in the whole of the seed, and not in part of it only, as is frequently the case when it is left to chance in unwatered soil. After growth is visible there must be no check from drought. A thorough drenching of the whole of the soil about the roots once a week, followed by a slight mulching to check evaporation, will suffice; and if sewage can be substituted for the water after the pods appear the crop will be both abundant and fine.

TOMATOES.—Whether grown in pots or not, a sunny airy position under glass is indispensable to the ripening of this important crop. It is a gross feeder, and should have liberal daily supplies of sewage or other liquid manure as the fruit is swelling. Supporting them by stakes, nipping off the tips of the growth one joint above each flower truss, thinning foliage and crowded lateral growth, are the chief cultural points. Fruits of medium size, handsome in form, and without ribs are best for table, and ought therefore to obtain preference before very large fruit at an exhibition. There are many excellent varieties, of which Acme and Vick's Criterion may be mentioned as standard sorts, with fruit of perfect form and high quality.

CAULIFLOWERS.—Really good heads of Cauliflower at the end of a hot dry summer so surely indicate skilful culture that they alone would materially affect the judges' decision. Plants just through the soil, or seed sown early in May, should have good heads by the end of August; but this is a little uncertain and is immaterial, for as a full supply has to be ready before the late Broccoli is over in May, and has to be kept up till the early

winter Broccoli is ready in autumn, due care has only to be taken never to let our supply of compact heads run short, and not only shall we always be ready for an exhibition, but for the household requirements. Trenches containing plenty of manure, frequent thorough soakings of sewage, top-dressings of rough half-decayed manure to check evaporation, and to encourage free root growth near the surface as well as deep down in the trenches, will insure that full development of leaves, without which we cannot have fine heads. Two sorts should always be sown at the same time for each successional crop; at the earliest spring sowing Snowball and Early London, next Walcheren and Early London, and for the late crops Veitch's Pearl and Autumn Giant, thus insuring and prolonging the supply from each sowing.

KIDNEY BEANS.—With these there is no special difficulty. Our supply would be taken from the June sowings in a rich soil, preference being given to Ne Plus Ultra. The plants are 6 inches apart, and some watering and mulching is requisite in parching weather.

MUSHROOMS.—These should always be included in a selection of vegetables. Amenable to culture in so many ways, the process is more a matter of expediency than of rule, if only due care be taken to have the bed about a foot thick after it is well beaten; to insert the spawn at a temperature falling from 90° to 85°, each piece of spawn being an eighth part of an ordinary Mushroom brick, and 9 inches apart in the bed; to cover if possible with pure loam fresh from a meadow; to maintain the house at an equable temperature of 55°, and to remember that the bed must be made about two months before the time when Mushrooms are required.

BRUSSELS SPROUTS.—Though these can hardly be regarded as an autumn vegetable, yet, as they are then frequently exhibited, I may mention Paragon as a distinct and handsome sort, which I had in cultivation for the first time last season, and which proved a distinct and valuable introduction. Under the ordinary treatment its sprouts were remarkably uniform in size, not large, but of the medium size, for which there is a general preference, very handsome, compact, and delicately flavoured.

POTATOES.—Only those sorts should be exhibited in which we have high quality and abundant produce in combination with full eyes and handsome form. Of such I may mention Improved Snowflake of the kidneys and Porter's Excelsior among rounds. Rich soil must be had to do full justice to them; in a poor soil they prove comparatively worthless.

CELERY.—Sturdy plants should be ready for the trenches about the middle of this month. Especial care must be taken to keep this early crop growing freely, for if it sustains a check or suffers at all from drought it will bolt to seed prematurely and be spoiled; it must, therefore, be watered regularly and frequently. In hot dry weather a thorough daily watering is necessary, and before the earthing begins drain pipes are set on end, the bottoms resting upon the soil in the trench, and the tops protruding out of the soil used for bleaching the Celery, so that water may be poured down them to the roots without risk of its lodging in the centre of the plants and causing decay. Select firm medium-sized Celery, crisp and well bleached, for exhibition, rather than that which is large, soft, and stringy, always remembering that mere size is a secondary consideration. There are several good sorts, and among the best are Major Clarke's fine Solid Red and Sandringham Dwarf White.

TURNIPS.—A late June sowing would probably afford us our supply at the end of August, but the only safe plan is to sow small successional beds of Turnips throughout summer. As soon as one crop is nicely in leaf sow another, our succession of sorts being Early Milan, Early Purple-top Munich, White and Red Strap-leaf for summer, Snowball for autumn, and Chirk Castle for winter and spring.

CARROTS AND OTHER ROOTS.—For a few handsome roots of Carrot and Parsnip, holes made in firm soil and filled with rich sandy soil is a sure and speedy way, a pinch of seed being sown at each station, and the plants thinned to one as soon as they are large enough. Of Onions take Banbury Improved, Beet Pragnell's Exhibition, and of Leeks The Lyon. Jerusalem Artichokes should be grown in very sandy soil to have them as round as a ball if required for exhibition.—EDWARD LUCKHURST.

SEASONABLE NOTES ON VINES.

IN 1863 I was called to take charge of a range of vineries, and though of course I had previously received some four years' tuition in general gardening, still all this was very different from having entire charge, even though it was under the superintend-

ence of the head gardener. It was late in the season, but the family did not require the Grapes until the shooting season, so the Vines had received but little fire, and consequently the end of May found me busy stopping and tying. All was satisfactory until news came unexpectedly that a portion of the family was coming home. Then came a lesson which I shall never forget. The laterals were trained to three wires horizontally; so far, I had attended more to the stopping not only of main laterals, but sub-laterals, and very strong they were—too strong, I knew, to tie into permanent positions; still I kept them from touching the glass, knowing that in time they would be ready for tying. The morning came, however. I was to go through the houses and tie the Vines to make them neat, though I knew they could not be done with safety. During the day the gardener showed me how he would like them done, and unfortunately he began with a Vine of Josling's St. Alban's, and this Vine was a miserable spectacle all the season, for numbers of shoots snapped off in tying and some broke in the night. The moral, of course, is, Do not tie tightly at first, just keep the shoots from the glass, also brace up with a tie any laterals that may have a tendency to bend downwards.

Since then I place great stress on stopping regularly before the Grapes flower, and so long as the leaves do not touch the glass and are otherwise secure, I generally tie when thinning. I advise all to be careful of Alicante, which is the most brittle of all late varieties, the laterals being so strong, and the young growth is often thicker than the old wood. Be content with pinching and stopping, and give bracing ties to secure doubtful laterals. My Vines 15 inches from the glass give me sufficient space. Still, had they been 18 inches I should like it better. Lady Downe's in the same house is very pliable and easy to tie, the same may be said of Alnwick Seedling. Gros Maroc is rather treacherous. All the above being grown in one house. Gros Colman shoots left till they are about to flower are easy to tie, Madresfield Court can be done sooner, Gros Guillaume is very strong and needs care; all in same house. Muscats I do not tie in permanently until I thin them.

Vines are variable in their growths in different localities. Yet I always fail to see the utility of early tying. Attend to each lateral as it requires it; do not begin at a Vine and finish it, for it is questionable if all the laterals are ready for stopping at once. I should rather say pinching, as all mine are done by thumb and finger. No hard-and-fast line can be laid down, but as a rule the top portion of the Vine is stopped first, then perhaps next day we attend to the bottom portion, leaving the centre portion of rod, which is always latest, for another day or two. It is astonishing, when the strongest laterals are pinched, how this not only strengthens them, but causes the weaker ones to push forward. In strong laterals, unless I want length for filling up, I pinch one or two leaves beyond the fruit, and give the weaker ones a joint longer.

A high forcing temperature is not required for late Grapes up to this date. Muscats are an exception. I believe that we use too much fire in the early part of the season. Vines, we all know, break best when they start naturally, therefore be gentle with fire until the Vines by their healthy growing condition tell us they are well, then gradually increase the fire. Cutting Grapes late in January caused me to be late in starting the Vines this season, with the result that they are really stronger than I ever had them, but we are now pushing them on by degrees. —STEPHEN CASTLE, *West Lynn, Norfolk.*

ANEMONES.

(Continued from page 323.)

THE second or *A. nemorosa* section of the genus contains several plants differing widely from each other in general appearance, although united by the following characters—viz., by having the seeds ovoid and tailless embedded in a mass of downy substance. The rootstock also is tuberous, varying considerably in form. This section is one of the most popular with the majority of cultivators, principally on account of the diversity of colour obtainable by the use of the varieties of *A. coronaria* and *stellata*. The members of this division, too, are widely distributed, and are found in very dissimilar positions; careful attention should therefore be given to this by the cultivator. Some of them are what are called social plants, and where found are generally growing together in large quantities, covering frequently in the case of our wild Wood Anemone several acres in many parts of the country. In the south of France, too, and the Riviera many forms of *A. stellata*, the scarlet Windflower, grow together in countless numbers and form a very distinct feature in the vernal vegetation of that district.

A. APENNINA, L.—An old and much-esteemed inhabitant of our

gardens, occasionally found in an apparently wild state in several of the southern counties, but at best a very doubtful native of this country; it, however, is found wild in abundance throughout Southern Europe. The roots are irregular tubers of a blackish colour. The root leaves are biternate. The stem leaves, produced in whorls of three, are ternate, with elongated obtuse slightly pubescent lobes. The flowers, which are freely produced in March and April, are solitary on stems 6 to 8 inches in height, of a bright sky blue, about 2 inches in diameter. This species and its varieties are not fastidious as to soil or situation, but thrive best in a light loamy soil, and are specially useful from the fact of their thriving under the shade of trees.

A. APENNINA ALBA.—A very useful white variety of the preceding, requiring the same treatment in all respects.

A. APENNINA BLANDA.—This unusually well-marked variety is considered a distinct species by many botanists; but while leaving to others more competent the task of deciding this botanical question, I can confidently assert that it has very high claims on the notice of the cultivator. The principal distinctions between it and the type are the sepals being smooth on the outside instead of being covered with hairs as in the type. The seed vessels are also each somewhat downy and tipped with a short black style. This plant is found wild in Italy, Greece, and Asia Minor; it flowers earlier than *apennina*, and also remains in bloom longer. We have several blooms still open (April 28th), the first having been seen in the first week of March. The flowers are much darker than the type, and also when well grown somewhat larger. It prefers a lighter soil and a more open situation than *A. apennina*.

A. APENNINA, FL.-PL.—A very rare form, not nearly so fine as the other varieties, but still well worth the attention of the collector of curious plants.

A. BALDENSIS, T. (syn. A. fragifera, Mur.).—A very rare and beautiful member of the genus, originally introduced into this country in 1792 from Mount Baldo. It was, however, practically lost for many years, but has been lately brought into cultivation by Messrs. Backhouse of York. The flowers, which are white, about three-quarters of an inch in diameter, on stout leafy stems 3 inches high, very much resemble those of the common Wood Anemone. The most suitable soil is a rather stiff loam, with a considerable mixture of granitic grit, and if on the rockwork a free western exposure will be found most suitable.

A. CORONARIA, L. (The Poppy Anemone).—By far the most popular species of the genus, and indeed so generally grown as to need no further description here. By successional planting this species and its varieties may be caused to bloom at all seasons, not even excepting the winter. There are several forms found in a wild state which, although not up to the florist's standard, are very effective in semi-wild situations.

A. CAROLINIANA, Walter (A. tenella, Pursh).—A somewhat robust-growing species from Carolina with white flowers, which appear about June on stems 1 to 1½ foot in height. The writer has not had much experience of this plant, but it seems to grow freely in the ordinary border.

A. NEMOROSA, L. (The Wood Anemone).—This species is so freely distributed in a wild state in this country, and, consequently, so well known, that it would not be mentioned here were it not for some of its varieties, which are so beautiful that any notes on garden Anemones in which they were omitted would be incomplete indeed. The principal forms in cultivation are *nemorosa fl.-pl.*, *rosea*, *rosea pl.*, *bracteata pl.*, and *cærulea*. Of these the three first are sufficiently distinguished by their names, and consequently require no further notice here; the two latter, however, require attention.

A. NEMOROSA CÆRULEA BRACTEATA PLENA.—In this form the double white flowers are surrounded by the enlarged leafy bracts of the involucre in such a manner as to give a decidedly frilled appearance to the blooms. It is an extremely curious and pretty variety.

A. NEMOROSA CÆRULEA (syn. Robinsoniana).—This is one of the most beautiful of spring-flowering plants, and one which should be in every collection of hardy plants however limited. The whole plant is rather larger than the type, and the flowers, which when well grown are as large as a florin, are of a beautiful pale blue, sometimes, however, much darker than usual. It is found in a wild state in several parts of England, but not in large quantities. It can be procured at nearly all hardy-plant nurseries, and will succeed well on a slightly shaded part of the rockwork, especially if planted amongst shrubs, and looks remarkably well in association with *Dodecatheons*, *Corydalis*, &c.—G. GUTHRIE.

WHAT IS AN AMATEUR?

THE question of the proper definition of an amateur is so important, and albeit a matter upon which there is so much difference of opinion, that for the behoof of all concerned some satisfactory solution should be arrived at, and all controversy on the subject settled once for all. In many societies an amateur is termed a person who does not grow plants

for sale. Now, this will allow gentlemen who employ half a dozen or more professional gardeners to enter the lists as "amateurs" against the *bonâ fide* amateur who either employs no skilled labour at all, or at the most a gardener two or three days a week. What chance would the latter have in any competition open *de jure* to amateurs, but *de facto* to everyone in the floricultural world except nurserymen? At the Crystal Palace Shows, the Exhibitions of the Auricula, Carnation and Picotee Societies, and others who might be instanced, but which are equally well known to your readers, we find exhibitors showing as amateurs who are professional gardeners, and even quasi nurserymen. Of course the rules of the particular societies permit this, and therefore the exhibitors are hardly to blame, except, perhaps, on the score of want of due appreciation of what is fair and equitable towards the rapidly growing class of amateurs.

To my mind the only true and proper definition of an amateur is a person who not only does not grow plants for sale but does not employ a gardener at all. Still, to meet the case half way, I should have no objections to seeing an amateur designated (and this is the rule in many minor societies) as a person who does not employ a gardener regularly. This latter proposition should satisfy every reasonable man, and if adopted generally would do much to allay the spirit of discontent and dissatisfaction which exists, and in no small degree amongst those who consider, and in my opinion rightly so, that under the existing definition of an amateur they are not receiving the fair and just treatment they are entitled to expect.—NORTH LONDON.

THE COMPLAINT OF THE ROSE.

Is there no more poetry in my sisterhood? Has it passed like a warm summer? Are we utterly degraded from our high and refined position? I cannot help asking, when I see such remarks about us in your last number, if Burns were with us now, instead of his sweet lyric his verses would be—

Oh! my love is like a front-rank Rose
Of a vulgar show in June.

And Hafiz—no one can write about us without bringing him in—what melancholy lines would he write!—

Oh! my love, my soul is bedewed with tears!
You are too majestic, your petals are coarse;
Your sweet scent has vanished!
You must go to the back row.

A new name is also invented for us—"pedigree Roses." Horrible title! I am fearful we are vulgarised, and must no longer be coldly civil to our lowlier sisters—Carnations, Auriculas, Pansies—who delight those who cannot, unfortunately for themselves, enjoy the sweet air and freshness of a large country garden. It is too bad! We who have listened in the calm midsummer evenings to the sweet gossip of the young and tender as well as to the bald gossip of the old and tough—we who have been chosen as the emblem of the largest empire in the world—are now degraded to being huddled up in boxes by jealous exhibitors and stared at by perspiring and crowded sightseers! Take us back to our noble gardens where we are lovingly tended; to our rustic parsonages where we are cherished as members of the family.

Even our lovers desert us. One of our largest admirers, a very big gun indeed, no longer condescends to praise us with his facile pen and witty jocosity; he no longer thinks us worthy his eloquence. Why are we thus treated? We were years and years ago as beautiful as now. This desertion is pitiful.

If we are no longer worthy the notice of the poetical minds of the day let us go back to our country homes, but do not let us become front and back ranks in a show.—VIEILLE ROSE INDIGNÉE.

ORCHID NOTES.

ODONTOGLOSSUM VEXILLARIUM IN GERMAN PEAT MOSS.—In the Orchid houses at Broomhall Field, Sheffield, the residence of B. P. Broomhead, Esq., is now to be seen a remarkable example of successful treatment of this fine Odontoglossum. A year ago the plant under notice had matured one strong growth, having been purchased the previous season as a small imported piece with one break. This growth carried three flower spikes, two of which produced eight flowers each, the third carrying seven flowers. After flowering, Mr. Walker, the gardener, repotted it in peat moss without any other compost, except a few small scraps of fibrous peat round the collar of the plant as a surfacing, and a thin dressing of sphagnum over all. Shortly afterwards the plant commenced growing and produced the remarkable number of eight strong breaks from the one growth. One of these breaks Mr. Walker took off when sufficiently advanced and potted separately. This has made a sturdy plant, which has now two flower spikes. The remaining seven growths all did well, and are now flowering with a total of fifteen spikes and eighty-four flowers. The blooms are very fine, one I measured being 3 inches in breadth by 4 inches in depth. It is not a high-coloured variety, but is very chaste and delicate, and would, I think, be preferred by many to some high-coloured forms now flowering in the same house. I examined the peat moss in which the plant is potted, and found it full of strong healthy roots.—W. K. W.

ORCHIDS AT REGENT'S PARK.—Mr. B. S. Williams, Upper Holloway, had an exceedingly beautiful display of Orchids at the Regent's Park Show yesterday, including representatives of the following species and varieties, duplicates of several being also shown:—*Aerides rubrum*, *Anguloa Clowesii*, *Calanthes Dominiana*, *masuca*, and *veratrifolia*; *Cattleyas Mendelii*, *Mossii*, *Skinnerii*, *Walkeriana*, and *Warnerii*; *Caloglyphes Massangeana* and *ocellata*; *Cymbidium eburneum*; *Cypripediums barbatum*, *barbatum Crossii*, *caudatum*, *ciliolare*, *Druryi*, *Laurencianum*, *Lowii*, *niveum*, *selligerum*, and *Swanianum*; *Dendrobiums calceolus* and *Pierardii*; *Dendrochilum latifolium*; *Laelia purpurata*; *Masdevallias Chelsoni*, *Harryana*, *Harryana lilacina*, *ignea*, *Veitchii*, and *Veitchii grandiflora*; *Mesospinidium sanguineum*; *Odontoglossums Alexandræ*, *cirrhum*, *citrosum*, and *cordatum*; *Oncidium aureum*, *concolor*, *cucullatum*, *flexuosum*, *Marshallianum*, *nigratum*, *serratum*, and *Suttonii*; *Sobralia macrantha*; *Sophranitis grandiflora*; *Trichopilia crispa*; *Vandas Dalkeith* var., *superba*, and *tricolor insignis*. The majority of these were blooming most freely, the *Cattleyas* and *Cypripediums* being especially handsome.

PHAJUS GRANDIFOLIUS.—It would be difficult to name any Orchid easier of culture or more beautiful when in flower than this *Phajus* with its giant spikes of bloom fully 4 or 5 feet high when well grown. It should be largely grown even where Orchids are not considered a feature in the garden, for we have no stove-flowering plant more attractive or useful for decoration. It is not only suitable for growing into large specimens for the exhibition hall or tent, but is equally suitable in smaller pots for home decoration, and it would be impossible to name any plant more effective in the conservatory when arranged amongst dwarfier flowering plants. Our plants are used for this, and no plants that we grow repay us better for the trouble and care devoted to them, for they are certain to bloom.

When grown for this purpose, and stood while in flower in the lower temperature of the conservatory, they receive a good rest and grow stronger and with greater freedom the following season; in fact, a good season of rest is as important with this Orchid as any other. Without rest it will soon cease growing strongly and do well, but with a season of rest it will never fail to grow with vigour, and in return produce flower spikes of great size. Plants that have occupied such positions should be turned out of their pots, and have the whole of the old soil carefully removed from amongst their roots, and new supplied. They dislike sour soil, and it is much better to repot them annually. The soil should not be elevated above the rim of their pots, but plenty of room must be left for water.

After potting they should be stood in a close moist atmosphere where the night temperature ranges about 65°, and must be shaded from strong sun. These plants should not be syringed overhead until their roots are growing freely, and until they reach this stage very little water will be needed. The material upon which they stand and their pots may be frequently syringed, but the plants must not be overwatered or their foliage is sure to be spotted, and the plants will be disfigured the whole season afterwards. Growing *Phajus* will depend very much upon the way they are watered until their pots are filling rapidly with active roots, for if supplied carelessly or too liberally before they reach this stage they seldom grow after with the same strength or vigour. When they are rooting freely and growing rapidly they require water frequently, and weak stimulants may be given every alternate time they require water.

The soil that suits these plants is good fibry peat and loam in equal portions, a seventh of cow manure (prepared by drying) passed through a fine sieve; to this may be added charcoal broken fine, meal and quarter-inch bones, and coarse sand. The pots in which they are placed should be well drained. Brown scale is their worst enemy, and should be removed by sponging.—W. B. L.

DISEASE OF VINES.

THE VINE MITE (PHYTOPTUS VITIS).

LAST autumn several correspondents of the *Journal of Horticulture* forwarded examples of Vine leaves badly diseased. In some instances the correspondents took the disease to represent a bad attack from the *Phylloxera*, and to all the writers the disease was new. As there is no mention of this particular disease in the chapter on "Diseases of Vines" in Mr. Barron's excellent book on "Vines and Vine Culture," we propose first to give our correspondents' experiences, and then a brief description and illustration of the ailment which in some instances has proved most injurious and destructive.

One of the first letters described the Vines as all crippled, and the gardener was puzzled by the novelty of the disease. Another said his Vines grew well for a time, some of them most healthily; then all at once they stopped, the stems appeared to harden, the leaves also hardened, curled, became malformed, shrivelled, and died. When the lower parts of young Vines were fresh and healthy the top and upper laterals were said to become like wire. A third account described the disease as

spreading, and an instance was given of every Vine being ruined in a house near Bristol, although under the charge of a first-rate gardener. We have also had bad accounts of the same pest from Liverpool and Frome. In one of the worst cases reported to us the Vines were received from France.

The gardeners were, and of course still are, naturally very anxious about this new state of things, and we can say from our own examination of the material forwarded to this office that it has been almost impossible to imagine Vines in a more deplorable condition than some of the specimens sent.

The general appearance of an affected Vine leaf is shown in the illustration at A, fig. 92. This leaf is by no means one of the worst, for in some examples the leaves are so distorted and ruined that at first sight it is difficult to see that they are Vine leaves at all. Our engraving shows the under side of a leaf. The dark patches are in nature pale brown, and when examined under a lens they appear as fine felted masses of cream-coloured or brownish hairs. When the leaf is turned over no such hairy patches are seen, but in their corresponding place on the top of the leaf there are numerous large green swellings, which project boldly from the upper surface. In mild cases there are but a

illustrated in the accompanying engraving, and in these secure nets it deposits eggs or, to write more correctly, buds. In the next stage the creature becomes furnished with six legs, without, however, changing its skin. In this six-legged condition the animal passes through the winter amongst the hairs of its felted nest in dead leaves. In the spring the little animal wakes up, and instead of six legs it now exhibits eight, and with its eight legs it begins to pass an active life. In this eight-legged condition the acari are found in the bark of Vines in the spring, and the bark is ascended by the arachnoids in quest of the young leaves. When the leaves are reached the mites select the lower surface, which they pierce, and there deposit their eggs. The irritation caused by the puncture appears to cause an abnormal hair-growth on the affected spot, and this dense growth of swollen leaf hairs forms a place of protection for the true eggs and the little maggots which soon emerge from them. It will be obvious from this description and the illustrations that the eggs and infant mites are in a place of great security in their position underneath, and never on the top of the Vine leaves.

The only known method of getting rid of this pest is to carefully gather together all the affected leaves and burn them. The stems of the

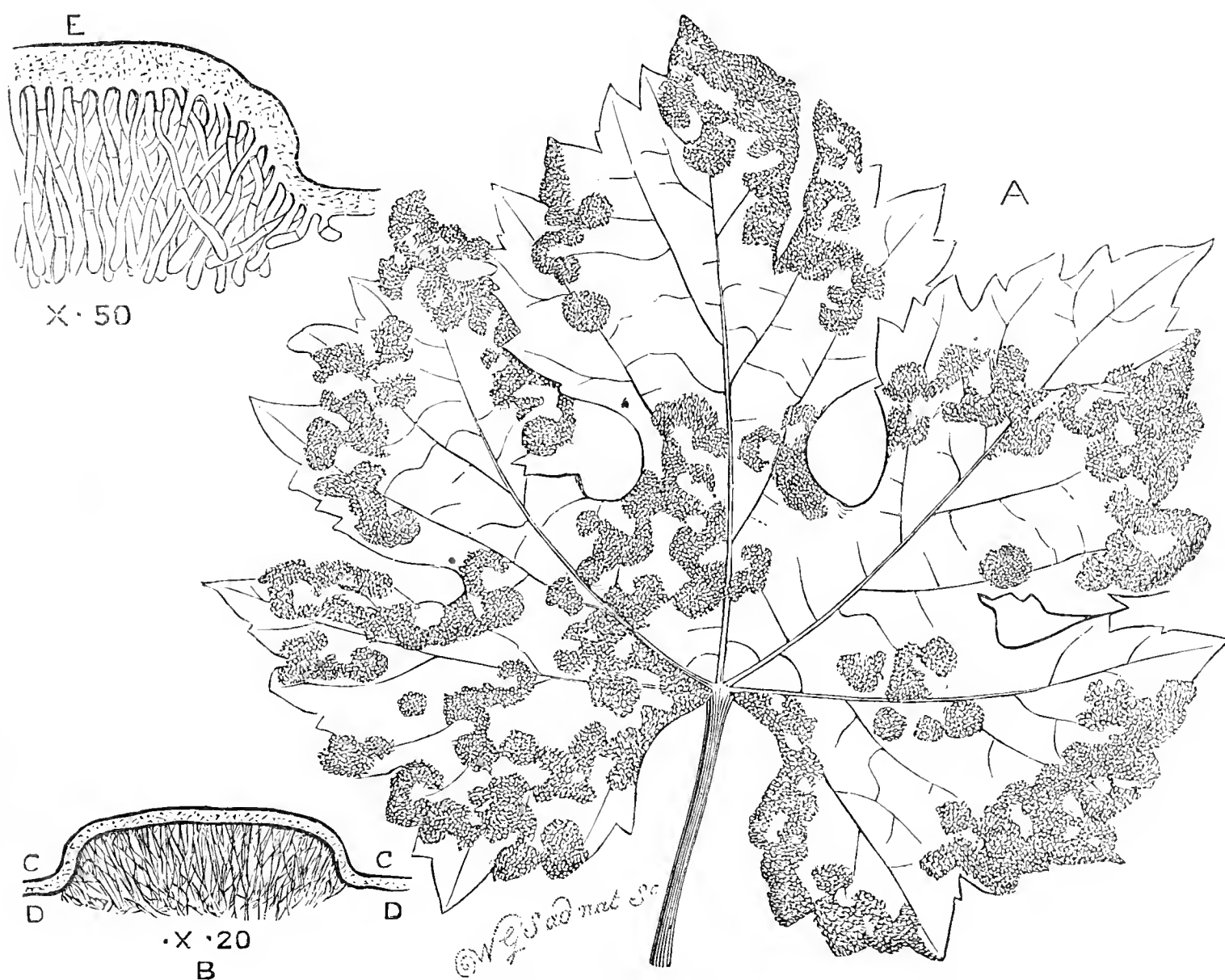


Fig. 92.—Disease of Vines caused by the Vine Mite, *Phytoptus vitis*.

few small disease patches, but in bad cases the leaf is more or less covered with them.

If we take a single disease pustule of the smallest size, cut it across, look at the exposed sectional surface, and magnify twenty diameters, we see it as at B; the upper surface of the leaf is represented by C C, and the lower at D D. We now notice that the swollen disease spot is really a small trough or basin filled with transparent cream-coloured or brownish hairs. A portion of the section further enlarged to fifty diameters at E better shows the nature of these swollen hairs. They are all furnished with numerous joints or stops, as is common in plant hairs.

At first this disease was supposed to be of fungus origin, and was, with many others of the same class, described in past times under the name of *Erineum*, the species belonging to the Vine being termed *E. vitis*. The name *Erineum*, given by Persoon, is derived from *erinos*, a hedgehog, in reference to the bristly appearance of the spots. Different forms have been found on the Alder, Maple, Birch, Beech, Walnut, Poplar, Rose, Lime, Apple, Pear, Bird Cherry, and other plants.

The mischief is now known to be caused by an acarus or mite of very small dimensions named *Phytoptus vitis*. The arachnoid or mite exists under four forms, first as a very small larva or maggot with two pairs of legs. This larva lies hidden in the little felted nests of hairs as

Vines should be also carefully dressed and cleaned, and in bad cases the surface of the border should be removed.

The similar affection of the Birch, commonly referred to as *Erineum betulinum*, was unusually common last year, so much so that several correspondents sent Birch leaves covered with the little crimson woolly spots to this office for an explanation of the singular appearance.

For the illustration and description of the Vine mite we are indebted to Mr. W. G. Smith.

GREENHOUSES.

MANY of your readers must have been often impressed with the great similarity in the construction of greenhouses, so far as it respects the internal appearance and arrangements. Those who have seen the one which I erected a few years ago, generally agree that it is a great improvement on the usual plan, although possibly not adapted to all positions; but I will give your readers a few particulars. I have a back wall 20 feet long, and 18 feet wide, and round this length of wall space I have carried an earth border 18 inches wide with ordinary garden edging, in which I have planted Camellias and Tacsonias, and instead of the ordinary wooden stand in the centre I have constructed a framework in blue brick carried up in tiers, starting from the level of the encaustic tile path which runs

round the house, but presenting one face only, and one side fronting from the wall. In the first border on the level with the path I have had the soil well prepared, and have planted Cheshunt Hybrid Rose, which has had sixty large flowers open at one time this spring; Lapagerias, &c., which I have trained on wirework, and which of course remain permanently in the soil. The remaining level or rather hollows of the tier I keep filled with tan, and place seasonable plants in bloom with Ferns on it, and bury the pots as far as possible. On the side and end of the house apart from the wall I have a slate slab in the ordinary way with hot-water pipes beneath. The roof is covered with the Tacsonia and other creepers, and the general appearance of the house is free from that stiff everyday style which is so common. I started on the principle of making a "garden under glass" as far as possible, and my friends tell me that I have succeeded. Perhaps some of your readers who may be contemplating the erection of a greenhouse may like to follow my example; if so, I shall be glad to give them any further information in my power. I think that for a larger house than mine the plan would answer really better.—Wm. W. BROWN, *Cotswold House, Evesham.*

FRUIT PROSPECTS.

THE unusual mild weather of the past winter and early spring months continued here until well on in April. Such weather had of course the effect of pushing the buds of Pear trees unusually forward. Fortunately, however, the frost which visited many districts was moderate here, little or no injury having been done to any fruit trees. Pears and Plums are setting good crops. Apples and Cherries are well clothed with blossom. Bush fruits in general are all looking remarkably well, with the exception of those in very exposed situations, where the embryo fruit has been blown off in large quantities. Gooseberries are a heavy crop. Peaches in unheated houses have set exceptionally heavy crops, and it will be necessary to remove about two-thirds of them. These trees, I am informed, are fifty years old or more, and are confined to borders 9 feet in breadth, including inside and outside. The young wood is consequently short and invariably well ripened, which is the sum and substance of success. Generous treatment in the form of liberal mulchings and no lack of moisture is necessary to the well-being of old trees such as those referred to.

Early Vegetables.—William I. Peas, sown at the end of November, were in bloom on May 15th, and also American Wonder, which was sown thickly in boxes in February, and planted out at the base of a sunny wall in March. The latter is in variety, which cannot be too highly valued for early work, especially in the north.—D. MACKIE, *Ayrshire.*

AN EXHIBITION OF ORCHIDS.

TRAVELLERS describe the luxuriant vegetation of tropical regions in glowing terms, and are especially eloquent when descanting upon the beauties of the epiphytal Orchids which grace the stems and branches of giant trees with rich and curious flowers; but could they by any chance witness such a display as that provided by Mr. Bull in his Chelsea nursery at the present time, their descriptive powers would be severely tested to do it justice. Orchid producing countries in all parts of the world have contributed representatives to this imposing Exhibition. Side by side are seen inhabitants of both the New and Old Worlds; flowers of enormous size in massive clusters, with others of smaller proportions in elegant light and feathery panicles appearing to float unsupported in the air; colours of almost every conceivable shade are there, from the deepest richest crimsons, brightest scarlets, and clearest yellows to the softest pink and purest white. The fresh green fronds of thousands of Adiantums and other Ferns impart an agreeable tone and foil to the brilliant tints of the Orchids, and the result is a display of wonderful magnificence.

The house devoted to this Exhibition is span-roofed, 100 feet long and 20 feet wide, with a central bed and two side stages, all being fringed with *Panicum intermedium*, a variety with much-furrowed green leaves, and long pendant shoots. In the central bed tall *Alcasias* and similar fine-foliage plants form a ridge, upon each side of which are arranged the Orchids with Ferns, not in formal banks, but free and graceful, very few stakes being employed, no glaring harsh pots being visible—nothing, indeed, to offend the eye and mar the general effect. At each end of the house are mirrors, which prolong the vista indefinitely, and the visitor who is unacquainted with this device is amazed on entering to see what appear to be interminable banks of flowers. Thousands of spikes are expanded, including a great number of rare species and varieties; but the useful and exquisitely beautiful *Odontoglossum crispum* (*Alexandrae*) is largely predominant in abundant grand varieties, no less than 1200 spikes having been counted, and their numbers are being increased daily. These are disposed throughout the house, but form a fine group at the end opposite to the entrance, where a handsome variety named *purpureum* is very noticeable for its symmetrical form and the rich purple tint suffusing the sepals, other forms having pure white blooms. *Masdevallias* are also strongly represented, nearly 600 flowers being open, including many grand varieties of the *M. ignea* and *M. Harryana* types. Of the latter *acanthifolia* and *magnifica* are very handsome; but the brightest of all is one named *Meteor*, which is of a glowing crimson scarlet unexcelled in the genus.

Cattleyas are exceedingly rich and imposing; about 150 flowers of *C. Mendelli* are expanded of many new and magnificent varieties. *C. labiata* is largely represented, the variety *brilliantissima* justifying its name by its wonderful colour; the chaste *C. maxima*, *C. Sanderiana*,

really beautiful, by far the finest variety we have seen, and scores of others. Another feature is the charming bank of *Odontoglossum vexillarium* facing the entrance to the house, where some dozens of plants are associated with *Masdevallias*. The former are much diversified, the flowers varying from pure white to the deep tints of roseum and rubrum. *Album marginatum* is peculiar but pretty, the sepals and petals edged with white; tricolor having crimson, white, and yellow flowers. *Cymbidium Lowianum* and the dark-lipped variety *atro-purpureum* is in fine condition, a total of nearly twenty spikes being expanded, some exceedingly long. *Oncidiums* contribute largely to the beauty of the Exhibition, *O. Marshallianum* being remarkably fine, one plant with two panicles bearing 128 of its grand golden blooms.

These only indicate the general features of the show, for scores of highly meritorious novelties might be enumerated. The following may, however, be mentioned as being in flower:—*Lycaste Skinneri* and its valuable variety *alba*, *Epidendrum rhizophorum*, *Sobralia macrantha*, *Lycaste aromatica*, *Cypripedium laevigatum*, *C. ciliolare*, *C. Stonei*, *Oncidium concolor* in great abundance, *Calanthe Dominii*, *Oncidium phymatochilum*, *O. citrosum* and the lovely variety *carneum*; *Odontoglossum Ruckerianum*, *O. Wilckeanum albens* (a lovely variety, white or white ground colour), the much-famed *O. mulus*, the striking *O. hystrix*, *O. triumphans*, *O. gloriosum* and variety *niveum*, with many other *Masdevallias*, *Deadrobiums*, and *Epidendrums* which cannot now be particularised.



THE announcement in several daily papers of the DEATH OF MR. T. CRANSTON OF HEREFORD caused a rumour to be spread abroad to the effect that it was Mr. John Cranston of the King's Acre Nurseries. On inquiry, however, we find that the deceased gentleman was Mr. Thomas Cranston of Pyon House, brother of the above, and very greatly respected in the district. He was proceeding alone in a dog cart to visit his farm at Newton Dillwyn, when it appears that in driving down a sharp bank a pin in one of the shafts gave way, throwing Mr. Cranston out and occasioning such injuries that he died shortly afterwards. The *Hereford Times*, in referring to the accident, remarks:—"The news of the death of this well-known and greatly respected gentleman has thrown quite a gloom over the whole district. No man was more highly honoured or held in greater esteem by all classes than Mr. Cranston, whose high and sterling character, uniform hospitality, and great kindness of heart were displayed in endless ways, endearing him to all who knew him, and winning the good opinion of all around him." We are requested to add the following note from a correspondent who is engaged in the King's Acre Nurseries:—"We are receiving no end of telegrams and letters respecting the above sad occurrence. We (the *employés*, one and all), are truly thankful that our kind employer is still spared to us, and trust he may be for many years. I assure you those who know him best love him most."

— THE NATIONAL ROSE SOCIETY'S annual report for the past season, with schedule of classes and shows for the present year, is now to hand. It gives the names and addresses of the members, a list of the affiliated societies, the names of the winners of the Society's medals in 1883, the financial report and full schedules of the Exhibitions to be held at South Kensington on July 1st, at Salisbury on July 9th, and at Manchester on July 19th. With regard to the Kensington Show it may be remarked that all exhibits will be required to be ready for the Judges at 10 30 A.M., and the entrance for exhibitors will be at the back of the conservatory on the west side of the Royal Albert Hall. A new regulation is also appended, which states that "none but members of the National Rose Society will be allowed to compete at this Exhibition."

— TOBACCO JUICE OR TOBACCO WATER.—The public are often making inquiries as to how and where this juice can be procured (under the name of the London Tobacco Juice), very few knowing that a grant from the Hon. Board of Customs was allowed to Messrs. Corry & Soper of Shad Thames, London, S.E., in the year 1866, for the purpose of extracting the juice from leaf tobacco for horticultural purposes, entirely free of duty, thereby enabling the public to get a strong article containing about 40 cwt. of leaf tobacco to every gallon for the sum of 2s. 6d., being a great saving on the ordinary tobacco water

obtained from the tobacco manufacturers, as it may be diluted with eight to ten parts of water with the best results, thereby being a great saving not only in cost but in carriage. We believe Messrs. Corry and Soper are the only makers of this article in London, and it may be obtained through the seed trade generally.

— THE LUDLOW ROSE SHOW is announced to be held on Tuesday, July 8th.

— AURICULA WITH A PRIMROSE HABIT.—Mr. W. Dixon, an amateur in Walsall, has amongst some seedling Auriculas a self with a very clear white paste, but producing one pip only on a stem as in the Primrose; and asks "if any other Auricula growers have found this to be a common occurrence, or is it unusual?"

— "F. K. B." writes:—"Two BLUE FLOWERS unnamed by 'Conservative Rose' have suggested themselves to me—*Omphalodes verna* for early spring blooming, and Borage. This latter may be too much of a wild flower for her purpose, but it is a beautiful blue colour."

— THE TOOTING HORTICULTURAL SOCIETY announce their third annual Exhibition for June 25th and 26th, which will be held in the Vestry Hall, Broadway, Tooting. Prizes are offered in eighty-two classes for plants, flowers, fruit, and vegetables. The Chrysanthemum Show will also be held in the Vestry Hall, November 18th and 19th, when, in addition to the numerous classes for Chrysanthemums, prizes are also offered for miscellaneous plants, fruit, and vegetables.

— MR. WM. HORLEY, Toddington, Beds, sends us some trusses of PANTALON POLYANTHUS SEEDLINGS, of which he states he "has had a fine display, having bloomed several hundred seedlings, and fully 75 per cent. being hose-in-hose." The blooms received were exceedingly distinct and pretty, most varied in colours, several shades of crimson, maroon, and red being represented, some being margined, laced, or streaked with white. The strain is an extremely meritorious one, for such bright and varied flowers are invaluable in the spring.

— "R. P. B." sends us blooms of ROSE REINE MARIE HENRIETTE, which he describes as "a grand variety worthy of much praise," in which we heartily concur. It is, indeed, a magnificent Rose, very broad in the petal, rich rosy crimson, full, of great substance, but does not possess much fragrance. It is vigorous in habit and free in flowering.

— THE forty-ninth ordinary meeting of the ESSEX FIELD CLUB will be held at the head quarters, 3, St. John's Terrace, Buckhurst Hill, on Saturday, May 24th, 1884, at seven o'clock. The following communications are promised:—

I.—"Report on the Flowering Plants Growing in the Neighbourhood of Colchester." By J. C. Shenstone, F.R.M.S., &c. II.—"Progress of the Report on the Recent Earthquake Shock in Essex." By Raphael Meldola, F.R.A.S., &c., and W. White. III.—"On the Earth Subsidence at Lexden, near Colchester, in 1861." By T. V. Holmes, F.G.S., M.A.I. IV.—"On the Occurrence of the Rhizopod (*Clathrulina elegans*) in Essex." By C. Thomas, F.G.S., F.R.M.S.

A series of photographs illustrating the effects of the earthquake will probably be exhibited. Field meetings will be held on June 2nd at South Weald, and on June 21st in Epping Forest.

— "W. D. W." sends the following respecting a RARE PLANT:—"A gardener, in his own estimation a bright and shining light, recently sent to a lady in a midland town some tubers of *Tropæolum tuberosum* with the following name and description:—'Podefolium, or Potato Climations. Quit new. I thought would Look very nice to Run over the Thorn Edge in front of Window.' Truly a little learning is a dangerous thing."

— THE above reminds us of an occurrence at a recent provincial exhibition, in which an exhibitor displayed a rather astounding knowledge of PLANT RELATIONSHIP. A class was provided for six Lycopodiums, thereby meaning Selaginellas, and in one collection a specimen of *Nertera depressa* was included. That the intentions of the exhibitor were honest was manifested by the fact that a label bearing the name was placed in the pan, and this circumstance rendered it the more remarkable that the Judges should have awarded it a prize; the mistake was, however, subsequently discovered and rectified. Several peculiar names were attached to the other plants, as, for example, *Aspidium alatum* to *Selaginella Kraussiana*, and *Lycopodium argentea* to *S. uncinata*, so that it was evident the exhibitor's notions of plant names were, to say the least, somewhat mixed.

— MESSRS. STEVENS & WILLIAMS, Brierley Hill Glass Works, Staffordshire, send us a sample HYACINTH GLASS of an extremely

elegant shape and novel colour. It is about 6 inches high, oval, contracted near the mouth, and then expanded into a neat undulated rim, to which is affixed the brass support for holding the bulb and spike in position. They are of various colours—rose, blue, violet, ivory white, and amber, the white and amber being very pleasing.

— THE ROYAL HORTICULTURAL SOCIETY OF IRELAND held an attractive Show in Mr. Guinness's grounds, Dublin, on Thursday last, the following being the principal exhibits. The Society's cup for twelve exotics was won by Wm. Jameson, Esq., with a superb collection, amongst which was a splendid specimen of *Cycas revoluta*. The Society's cup for nine pot Roses was won easily by Charles Strong King, Esq., with a very fine collection. The six exotic Ferns shown by L. G. Watson, Esq., were of extraordinary beauty, as were the six Lycopods of Phineas Riall, Esq., amongst them being a plant of *Selaginella lepidophylla*, well furnished and of remarkable verdure. Some of the most lovely flowers in the Exhibition were the nine first-prize Gloxinias from Richard Pim, Esq. The Azaleas of George M'Master, Esq., and the Rhododendrons of W. J. Perry, Esq., made a magnificent display, as did the Pelargoniums of Richard Pim and W. J. Perry, Esqrs., who divided first honours in this class. A. F. de G. Cusack, Esq., took first prize for Calceolarias, showing some plants of considerable merit. The first prize for Tree Ferns was awarded to C. S. King, Esq., for a fine specimen of *Dicksonia antarctica*. In cut Roses the first prize for twenty-four blooms, exclusive of *Maréchal Niel*, was won by the Rev. F. Tymons with a very good collection; C. S. King, Esq., taking first prize for *Maréchal Niel* with twenty-four magnificent blooms; the second-prize collection (Phineas Riall, Esq.) also possessing great merit. In the extra classes, and amongst exhibits not intended for competition, were a very interesting collection of choice and rare plants kindly sent from Glasnevin by the Curator of the Botanic Gardens, Mr. Moore; a most extensive and varied collection of ornamental stove and greenhouse plants from Messrs. Henderson and Son, Fortfield Nurseries, Templeogue; a choice and beautiful group, including some of the finest varieties of Show Auriculas, forwarded from Riverstown, Nenagh, by J. T. Poe, Esq.; and a very extensive collection of the same forwarded from his nurseries, Ballybrack, Co. Dublin, by Mr. Kavanagh. A stand of *Tulipa Gesneriana*, remarkable for their brilliant colour, from Rev. Frederick Tymons, was much admired. Stand of choice tuberous Begonias, from the gardens of the Earl of Portarlington, commended. In the florists' department a magnificent stand of no less than forty-eight choice Tea Roses, and an equally fine stand of the newest and best varieties of Zonal Pelargoniums, was forwarded from the Lough Nurseries, Cork, by the proprietor, Mr. Hartland.

ALEYRODES VAPORARIORUM.

I HAVE this day sent off, per parcel post, a small box containing a glass tube enclosing a Tomato leaf infested with a small white insect, which is causing me considerable trouble, for which I have tried to remove by using Fowler's & Keel's insecticide and Fir-tree oil, after having smoked twice with tobacco paper and Laurel leaves. I have syringed the Tomatoes with the above and dipped them as well as I could, all to no use. I should be thankful for any information that can be given to enable me to get rid of the pest, as it is doing considerable mischief. Also, I should be glad to have its name as well, if possible.—A TWELVE-YEARS SUBSCRIBER.

[The name of the insect is given above, it is also popularly known as the "Holy Ghost" insect. It limits its attacks to a few kinds of plants, of which the Tomato is one. We shall be glad if any of our readers can supply the information that is needed by our correspondent.]

GRAPES ON VINERY WALLS.

IN reply to "Journeyman" (page 382) the back wall of the vinery is 11 feet high. The Vines were Black Hamburgs, two-year-old canes, short-jointed, and grown in large pots. They were planted in the border, and trained on the wall. The number of bunches were nine and eleven on each side, averaging about three-quarters of a pound. They were very regular, and the foliage round and thick; the fruit very sweet and sugary.

They had copious supplies of water and urine, with strong soot water. As soon as the bunches were thinned and colouring well, none of my Vines received a drop of water from the syringe from starting till the Grapes were cut last year, but many hundred gallons were poured inside the vinery. I sent a box of fruit to the Editor last autumn, but it miscarried. It contained a fair specimen of the above, with foliage.—J. E. W.

STRAWBERRIES AND CROCUS GRASS.—Strawberries in wet weather are very liable to be soiled and splashed if something is not placed

beneath the berries to raise them from the ground. Hay and straw are, like other similar materials, open to the objections that they are liable to decompose and to harbour slugs. At Minella to-day I saw a new use for Crocus grass as a substitute for the hay or straw or other material placed around each Strawberry plant. Cartloads are cut off at this season in large establishments, and, I venture to say, in no better way could it be utilised. This Crocus grass is hard and wiry, and will last as I suggest for a long time.—W. J. MURPHY, *Colonel*.

SPRING DIGGING.

THE busy season for gardeners has come round once more. In the kitchen garden especially all is, or should be, actively going on, as any neglect or delay at this time will bring its punishment late in the season. Stirring the ground between growing crops has been advised times without number in gardening periodicals, and this year it will be more important than at any time in my recollection. The extraordinary absence of frost during winter and of drying winds in March, has left all heavy soils in poor condition for the reception of seed. For my own part it has been a not altogether unmixed evil, as I am determined from this time to dig no heavy soils until cropping. I should have been in a better position with kitchen garden work had I taken the advice which Mr. W. Taylor gave in the Journal some years ago, to discontinue autumn digging; but never knowing long beforehand the amount of forest tree planting I may be called upon to do, I have been in the habit of having digging done early in autumn or winter, so as to be ready for any emergency. In some years the plan has worked well, but this year it was nearly impossible to get the land into good condition. The time spent in preparing for Potatoes and all early crops was more than double what it should have been. Frequently stirring the soil between growing crops must be resorted to at all opportunities, or the result will be poor crops on all heavy land. Immediately the plants appear above ground, forking between the rows will be done two or three times in dry weather, and after that the Dutch hoe will be employed, and by these means I hope to bring the soil into good condition.—T. A.

SEASONABLE NOTES ON FLORISTS' FLOWERS.

AURICULAS.—As I have already said, my notes from henceforth on these and other florists' flowers will not be from the exhibitor's point of view, but from that of the general grower who is contented from one cause or another to keep away from the struggles of the exhibition tent, and to be satisfied with his flowers at home. I hope I shall not fall into the error of too highly estimating them, for I shall have the corrective of seeing the splendid specimens of culture we can see now-a-days. How often have we heard, "Oh, I have much better than those at home?" How often has the salmon which got away with the fly and line been by far the finest fish seen all the day, and the fox that got away the most splendid fellow for a run that had been seen for some time? and I shall, I hope, therefore know how to moderate my expressions: but I have not for some years had a finer bloom of Auriculas than this season. I dare say my plants would have been nowhere alongside of Mr. Horner's or Mr. Douglas's, but even to my eye they were good, and yet I see woolly aphides crowding around the crown. The plants have now nearly finished their blooming, and I shall next week remove them to their summer quarters under a hedge facing the north. I shall probably commence repotting at the end of the month, and as my collection is small it will not take very long. I am quite sure the simpler the compost, provided it is good, the better—three parts turfy loam and one part cowdung, with a little leaf mould and charcoal, I think about the best. I think the size of pots not a matter of any great importance. That they will do well in small pots is unquestionable, but that most successful grower, Mr. Woodhead, was accustomed to use large pots; but, then, he always put a large quantity of drainage, so that it came to nearly the same thing, and if 5-inch pots are used this will be necessary. A longer experience of glazed pots confirms my preference for them. The plants look better in them, and do not require so much water in the winter months, while the plants are quite as vigorous as in the ordinary unglazed pots. I believe in firm potting, and when there is any sign of woolly aphids the roots should be well washed in soap and water or in a weak solution of Fir-tree oil. As aphides are abundant this year I have given my Auricula pit a good smoking, and the plants will all be gone over with hand, dead leaves and stems picked off, and the surface stirred before they are moved to their summer quarters.

CARNATIONS AND PICOTEES.—I never planted out a more healthy set of these plants than this year, but they have had a hard time of it since then. They had not been coddled during the winter, and had been stood out of doors for some time before they were planted; but those cold frosty nights (although with us the frost was not nearly so severe as in some parts), the easterly winds, and hot suns injured them very much and checked their growth. If stakes have not already been placed to them it should be done at once, and the flowering shoots tied to them. The surface of the ground ought to be stirred, as nothing conduces more to the well-doing of the plants than the use of the hoe or fork.

PANSIES.—I have had a good collection of these in flower in pots, and certainly most remunerative they are for any care bestowed on them, especially the Fancies, some new ones of Mr. Hooper's of Bath being specially noticeable. They will soon have done flowering, and will then be turned out of their pots into a cool part of the garden, which I find difficult to get, and then the plants will be spread out and some light

compost shaken in amongst them. There will be, when the time for taking up comes, plenty of young plants by dividing the roots, and these I have found to do quite as well as from cuttings, and a great deal of trouble is thereby spared.

GLADIOLI.—These are late in coming up with me this year—I suppose owing to the long-continued dry weather; and in a note received this morning from Fontainebleau, Mons. Soullard says that he has only just completed the planting of his bulbs. Nothing will require to be done to the beds now except keeping them clear of weeds.

ROSES.—One hardly likes to write of these as florists' flowers, but their *clientèle* is far more numerous than that of all other florists' flowers put together, and many are the inquiries now made about their prospects. Some write in despair that they are so backward, that they cannot possibly have any blooms in time for the exhibitions, &c. It has been a very extraordinary season, and will be the means, I think, of making many converts to the system of late pruning, as I see it has already done with many of your correspondents. Mine were not pruned until late in April. There were then flower buds on many of the stems and the plants quite green. I did not find that cutting them in this condition caused bleeding to any appreciable degree, and since then they have made good shoots, and I have no doubt that they will be quite up to their usual vigour when the "time of Roses" comes. Let the hoe be well used amongst them; it is as good as manure to them. Those who exhibit have their beds all mulched now. I have had the mulching on my beds all turned in for appearance sake, as I do not exhibit. Should this dry weather continue watering with weak liquid manure will be necessary.—D., *Deal*.

CACTACEOUS PLANTS.

(Continued from page 342.)

DISCOCACTUS, *Pfeiffer*.

THE two or three species which have been assigned the generic name of Discocactus are amongst the least interesting members of the whole family, and certainly their horticultural value is small. They are dwarf and semi-globose in form, very suggestive of an Echinocactus in appearance, and some writers have thought that the two genera were not sufficiently distinct to be separated. It must not, however, be confounded with the Discocactus or Disisoeactus biformis of Lindley, which is a totally different plant, now referred to Phyllocactus. The principal characters adopted by Hooker and Bentham are the following:—Calyx and tube extending beyond the ovary, slender; base naked, smooth; lobes indefinite, exterior reflexed, interior larger. Petals in two series, spreading, interior smaller. Stamens indefinite; filaments adnate to the tube of the calyx, interior longer; anthers small. Stem depressed, ribbed; ribs few. Flower usually solitary from the apex of the plant, and fragrant.

The species are natives of Brazil and the West Indies, inhabiting dry sandy regions, and are found rather difficult of cultivation, and at the present time I do not know one collection which contains living plants. They require a warm sunny position and great care in supplying water, as the slightest excess results in the death of the plants.

D. INSIGNIS, *Pfeiffer*.—This is the best known, and is chiefly noteworthy for the fact that its flowers possess an extremely agreeable fragrance, which has been compared to that of Orange blossom. The stem is semi-globose, with nine or ten obtuse ridges, and a crown of white wool-like substance, from which are produced the long and slender flowers, having the sepals pink, and the petals white or bluish-tinted. D. alteolens has the stem of a much darker green colour, and flowers with a less pleasing odour.

CEREUS, *Haworth*.

(The Torch Cactus.)

Leaving the globose or tubercled Cactæe represented by those previously described, we find in Cereus a greatly different mode of growth the stem being greatly elongated, usually of small diameter in proportion to its height, frequently much branched, but bearing parallel ridges from apex to base, upon which are arranged bundles of spines, as in other genera. In height these plants are the giants of their family, some forming in the native habitats enormous columns 40 to 60 feet high, while even in cultivation it is not uncommon to find specimens 15 to 20 feet in height. Some are very rapid growers, and make large plants in a few years. Others, again, are so slow in growth that a dozen years seem to make no appreciable difference in their size. There are, however, two very distinct sections or groups of species of the true Cereus, which differ considerably in habit; one species being distinguished by their erect rigid stems, and the other by the procumbent or trailing slender stems. The plants included in both bear handsome and abundant flowers, but the ereeping or trailing forms are the most beautiful, and contain most of the much-famed Night-flowering Cactæe. The genus Cereus, however, as now constituted includes a large number of plants which were formerly assigned to other genera, but which modern botanists consider are entitled to no higher rank than sub-genera. Under the name of Cereus are therefore arranged over two hundred species, natives of tropical America, the West Indies, and Galapagos Islands, from regions differing considerably in temperature, but generally agreeing in the peculiar dry sandy or rocky nature of the soil they inhabit.

Hooker and Bentham thus characterise the genus and adopt the following subgenera as pointed out by Dr. Engelmann:—Calyx tube produced beyond the ovary; lobes numerous, exterior scale-like, interior elongate, spirally imbricated. Petals indefinite, larger than the calyx lobes,

spreading. Stamens numerous; filaments adnate to the base of the calyx, the inner free. Ovary exserted, scaly. Style filiform. Stigmas five to indefinite. Fruit scaly or tuberculated. Flowers lateral, often nocturnal.

Echinocereus.—Calyx tube short, sub-campanulate. Stigmas thick, green. Seed tuberculated. Stem dwarf, often sub-globose.

Eucereus.—Calyx tube long. Stigmas pale. Seeds smooth, rarely rugose. Stem tall. Spines in flower bearing and sterile parts of the plant not different.

Lepidocereus.—Calyx tube short, scaly; lobes few. Petals fleshy. Stigmas pale. Seeds smooth. Stem tall. Spines of floriferous or sterile fascicles alike.

Pilocereus.—Calyx tube short, scaly; lobes few. Stigmas pale. Seeds smooth. Stem tall. Sterile and floriferous fascicles dissimilar.

Echinopsis.—Calyx tube elongate, downy; lobes numerous. Stamens

for grafting other Cactæ upon has already been noted, and it need only be added that almost any species is suitable for the purpose provided it be not of too slow growth.

SELECT SPECIES.

It will be convenient in considering these to take the true *Cereus* first.

CEREUS PERUVIANUS, Pfeiffer.—Under various names this *Cereus* has been known to botanists and grown in European gardens for upwards of 150 years, and it is therefore the most familiar example of the columnar species. The titles by which it has been designated, such as pentagonus, hexagonus, and heptagonus, refer to the number of ridges or angles upon the stem, and owing to these varying considerably the same species in different stages has received the respective names. *C. pentagonus* of Haworth has been regarded as distinct from *C. peruvianus*, but there appears to be little doubt that in a broad sense all that have been described under these names are simply variations of one type represented by *C. peruvianus*, which is a native of many districts in tropical America. There with *C. giganteus* and other allied species it forms a remarkable feature, the tall rigid stems being sometimes freely branched in candelabra-like manner, and producing at certain seasons abundance of beautiful flowers.

In cultivation this *Cereus* grows rapidly, and soon, if unrestricted, attains a height of from 12 to 20 feet, a few specimens being seen as much as 30 feet high. Probably the most remarkable in England are those in Mr. Major's collection at Cromwell House, Croydon, of which an engraving is given in fig. 93, prepared from a photograph very kindly furnished by Mr. Major. The original plant (the central one in the figure) was bought in Holland in 1852; but by cutting down the stem at intervals a family of fine specimens has been obtained, some of which are equally as large as the parent. The old stem has two branches, each 4 feet high, three others 6 feet high, and a small one 18 inches in height. One straight unbranched stem, the first top taken off, is 13 feet high. The next cutting developed into a fine plant, now in Mr. Peacock's collection, about 14 feet high, with several branches, and which last year had as many as thirty-six flowers. The fourth plant is 8 feet high, with two branches; the fifth, which has been topped, has two branches 11 feet high, two 6½ feet high, and one 18 inches in height. It will thus be seen that one plant has produced a total length of stem, counting all the branches, of 80 or 90 feet, of an average diameter of 5 inches, in about thirty years. The Cromwell House collection includes many rare and beautiful Cactaceous plants; but this group of *Cereus* is undoubtedly the most remarkable of all.

Plants of moderate age generally have the stem from 3 to 6 inches in diameter with narrow ridges 1 to 1½ inch deep and 2 inches apart, very distinctly marked in the young growth, but on older stems the ridges are nearly lost. The clusters are 1 inch apart, containing six to eight brownish spines half to 1 inch long on a small brown tuft of wool-like substance, which is sometimes scarcely perceptible. The stem is usually deep green, but the young growth occasionally assumes a glaucous blue colour almost as strongly marked as in *C. Jamacara*. The flowers are white or sometimes tinged with red, 4 to 6 inches in diameter, and are borne freely during the summer months on the upper portion of the stem or branches.

C. PERUVIANUS MONSTROSUS.—This is a peculiar variety of the fasciated or contorted type so frequent in these plants. The substance of the stem is most strangely twisted and irregular in form, grotesque in the extreme, and not bearing the slightest resemblance to the species except in the flowers. Specimens 4 or 5 feet high are sometimes seen in cultivation, and one of the largest is in Mr. Boller's collection. A smaller form of this variety named *minor* is also grown, and rarely exceeds 6 or 8 inches in height, peculiarly contorted, but not so fasciated as the other.—L. CASTLE.

(To be continued.)

VINE GROWTH.

IN last week's Journal it is stated by "A Kitchen Gardener" that young Vines that are stopped "as soon as the top of the house has been reached, and are never allowed to go further, become very much thicker on the part which will bear the fruit than they would do if allowed to grow unchecked"—as some growers allow their Vines to do—permitting the shoots to grow down the back wall as your correspondent describes. I agree with "A Kitchen Gardener" that it is best to stop the rods at a reasonable height, but it is certainly not the case that Vines so stopped grow thicker in the stem than those which are allowed to extend. The thickness of the trunk of any young or old Vine is exactly and invariably in proportion to the amount of top growth allowed; and the fact is easily explained on physiological principles, well understood and acted upon by all intelligent workmen in thinning plantations. The Vine, however, shows this sooner than most other plants, and if your correspondent will grow two Vine rods of equal strength from the same Vine, and stop one and let the other grow, he will soon prove it to his own satisfaction, for the one that is stopped will be much the slenderest cane. I could show many striking examples of this here on young and old Vines, but the fact is admitted by growers generally.

"A Kitchen Gardener" also states that the practice of leaving Vine rods 12 feet long the first year and fruiting them, instead of cutting them back in the old way, is associated in his mind with Mr. Pearson of Chilwell, whose experiments were conducted, he says, long prior to those of present Grape-growers. I know Mr. Pearson's Vines, and was under the impression that the whole of the Vines at Chilwell at the period referred to were grown on the cutting-back system. I have also read Mr. Pearson's writings and the book on the Vine published by him or the firm after the date referred to by "Kitchen Gardener," and to the best of my recollection it contains no instructions or allusions to the point raised by "Kitchen Gardener;" so that if Mr. Pearson practised the system he has not thought it worth while to recommend it to others.—NON-BELIEVER.

ESTABLISHING ROOKS.—My employers having some young rooks, they are very anxious to get them to build in our park. The trees are princi-



Fig. 93.—*Cereus peruvianus* at Cromwell House.

in two series; the exterior adnate to the calyx tube, inner free. Fruit scaly. Stem depressed, ribbed, globose, or cylindrical.

Culture.—In so large a genus there must necessarily be some difference of cultural requirements, but this chiefly refers to the temperature, and if the region and elevation at which the plant is found is known there will be comparatively little difficulty in ensuring its success. Most of the true *Cereus* (the *Eucereus* of the above table) need a tropical temperature, with similar soil to other genera, though as a rule the strong-growing species can be safely encouraged with a little well-decayed manure if necessary. The trailing sorts need very little rooting material, and some indeed, as *C. grandiflorus* and its allies, obtain sufficient nutriment by their stem roots alone when upon a suitable wall or trellis. They can all be readily propagated by cuttings of the growth, and even large portions of the stem will root if separated from the parent and placed in dry soil. So readily are roots produced that in some parts of tropical America live fences are formed by placing portions of the stems in closely together, and it is said that they rarely fail. The use of certain species as stocks

pally Oak, and some of them are very large. I have been asked about them building and the food they required, but as I know nothing about them I thought I would write to the *Journal of Horticulture*. I have looked up the back parts for the last two years, but I cannot see anything about them. Can any reader kindly let me know the best way to keep them and how to look after them so as to induce them to build on the place?—A. McK.

BATH SPRING SHOW.

MAY 14TH.

ANOTHER most successful Exhibition was held in the Sydney Gardens, than which no more beautiful or convenient site could well be selected. The weather being favourable, crowds of visitors thronged the Exhibition, and apparently fully appreciated the rich floral and musical treat provided by the energy of the Committee of the Bath Floral Fêtes, of which Messrs. R. King and B. Pearson are respectively Chairman and Honorary Secretary. The majority of the classes were well filled, four tents, one very large, being devoted to the various exhibits.

AZALEAS.

These are invariably well shown at Bath, and on this occasion the many specimens, large and small, were at their best. The groups were alternated with the fine-foliaged plants, and the effect as viewed from the ends of the long tents was grand. With twelve specimens a local grower, Mr. W. T. Biggs, gardener to J. C. Hurle, Esq., Brislington, took the lead, and was followed by Mr. J. Cypher, Cheltenham, the third prize going to Mr. C. H. Keel, gardener to Colonel Landon. The first-prize specimens were large closely trained pyramids, some of the best being Duc de Nassau, Stella, Sir C. Napier, Fascination, Model, and Beauty of Surrey. Mr. Cypher's were large, well-flowered, globular specimens, Mr. Keel's being irregular and beautifully flowered pyramids. In the class for nine specimens Mr. W. Long, gardener to C. Gardiner, Esq., was first with magnificent plants of such varieties as Roi d'Holland, Model, Magnet, Souvenir du Prince Albert, Iveryana, and The Bride. Mr. W. C. Drummond was a creditable second. Mrs. West had the best six specimens, and Messrs. Long and W. C. Drummond were successful in other classes for Azaleas.

STOVE AND GREENHOUSE FLOWERING PLANTS.

With twelve specimens Mr. Cypher was an easy first; Messrs. Long, J. F. Mould, Pewsey, and E. Tudgey, Waltham Cross, taking the remaining prizes in the order named. Mr. Cypher's grand group included a magnificent specimen *Erica depressa*, *E. Lindleyana*, *E. Cavendishiana* being also large and well flowered. *Anthurium Schertzerianum* Wardii with twelve fine spathes; *A. Schertzerianum*; immense specimens of *Azaleas Cedro Nulli* and Mrs. Fry; *Pimelea Hendersonii* and *P. spectabilis*; *Hedera tulipifera* and *Aphelaxis macrantha purpurea*, all in excellent condition. Mr. Long had among others fine specimens of *Ixora Prince of Orange*, *I. Williamsii*, *Rhododendron Gibsonii*, *Hedera tulipifera*, and *Azalea Model*. Messrs. Mould's and Tudgey's plants were well flowered, but were generally smaller than the above-named. The best nine plants were staged by Mr. W. F. Biggs, and included highly creditable examples of *Aphelaxis macrantha purpurea*, *Genetyllis Hookerii*, *Ixora Prince of Orange*, and *Erica Cavendishii*. Mr. C. H. Keel was a good second, the third prize going to Mr. W. C. Drummond. With six plants Mr. W. J. Mould, gardener to E. E. Bryant, Esq., was first with moderate-sized well-flowered specimens of *Bougainvillea glabra*, *Genetyllis Hookerii*, *Dracophyllum gracile*, *Pimelea spectabilis*, *Clerodendron Balfourianum*, and *Genetyllis tulipifera*. Mr. G. Tucker, gardener to Major W. P. Clarke, Trowbridge, followed, his groups including a fine specimen of *Anthurium Schertzerianum Veitchii*; the third prize being well won by Mr. H. Jones, gardener to General Doherty. In the single specimen class Mr. W. Long was adjudged the first prize for a good plant of *Ixora Williamsii*, the more valuable specimen of *Anthurium Schertzerianum densifolium* bearing grand foliage and twenty large spathes staged by Mr. Cypher gaining the second position. *Ericas* were shown in goodly numbers, and included many meritorious specimens. Mr. Cypher had the best six, Mr. W. Long being a good second. Messrs. J. F. Mould, W. J. Mould, and W. F. Biggs were also successful exhibitors of *Ericas*.

FINE-FOLIAGED PLANTS.

The best sixteen specimens were staged by Mr. Cypher, among these being fine plants of *Kentia australis*, *K. Fosteriana*, *Cocos Weddelliana*, *Pritchardia pacifica*, *Dasyllirion acrotrichum* and *Phormium tenax variegatum*. Mr. J. F. Mould was placed second, his group including *Gleichenia rupestris*, *Cocos Weddelliana*, *Dracæna Goldiana*, and *Croton Johannis* in good condition. Mr. W. J. Mould had a good group, and secured the third prize. Several groups of Ferns were arranged, *Adiantums*, *Davallias*, *Gymnogrammas* predominating, and of these the most successful exhibitors were Mr. J. Coke, gardener to A. P. Stancombe, Esq., Trowbridge, and Messrs. W. J. Mould, G. Tucker, H. Jones, and W. C. Drummond.

ORCHIDS.

These are not usually well shown at Bath, but on this occasion there were several competitors, and a few choice sorts included. Mr. Cypher had the best six varieties, these consisting of a good pan of the lovely *Cypripedium niveum*, *Dendrobium nobile pendulum* in good condition, *Masdevallia Lindeni*, *Cattleya Mendeli*, *Odontoglossum Halli*, and a good pot of *Dendrobium Jamesianum*. The second prize was awarded to Mr. F. Perry, gardener to H. C. Cruger Miles, Esq., Bristol, who had *Cypripedium caudatum roseum*, *Cymbidium Lowianum*, *Lælia cinnabarina*, *Odontoglossum Pescatorei*, *Cypripedium Boxalli*, and a good form of *Masdevallia Lindeni*, all in good condition. Mr. W. J. Mould was third, his best being *Dendrobium thyrsiflorum*, *Odontoglossum Alexandræ*, and *Cattleya Mossiæ*. Mr. Cypher also won the first prize for a new or rare plant with the beautiful and distinct *Cypripedium Robelianum*, bearing six flowers. Mr. W. J. Mould followed with *Odontoglossum radiatum*.

ROSES AND PELARGONIUMS.

One tent was filled principally with the numerous pot plants of these. The best nine varieties of Roses were staged by Mr. J. F. Mould, and

included were good specimens of Dupuy Jamain, Charles Lawson, Etienne Levet, Abel Grand, and Madame Lacharme. Mr. M. Cole, gardener to R. B. Cater, Esq., Bath, was a good second, his group comprising well-flowered plants of *Devoniensis* and Madame Willermoz, Baronne de Rothschild and Madame Gabriel Luizet. Mr. A. W. Southard, gardener to F. J. Walker, Esq., Bath, had the best six varieties, these consisting of well-flowered specimens of Madame Lacharme, Edward Morren, John Hopper, Richard Wallace, Annie Wood, and Royal Standard. Mr. A. Hawkins, gardener to S. Jolley, Esq., was a good second. Mr. Cypher took the lead with nine show Pelargoniums. His examples of Miss Simpson, Madame Meschard, Triomphe de St. Mandé, Duchess of Edinburgh, Lady Isabel, Edward Perkins, C. Outram, and Empress of Russia being first-class in every respect. Mr. A. A. Walters and Mr. Tucker were the other prizewinners. Fancies and spotted sorts were well shown by Mr. H. F. Biggs, gardener to H. C. Hurle, Esq., and were awarded the first prize in both classes.

MISCELLANEOUS PLANT CLASSES.

Rhododendrons in pots were shown by several growers, but Messrs. G. Cooling & Son, Bath, easily secured the first position with remarkably well-flowered plants of Michael Waterer, Gulnare, Blandyanum, Christopher Snowdon, Mrs. Holford, Brayanum, and Lady Claremont, Messrs. H. C. Mayell and R. B. Cater were also successful with Rhododendrons, while the prizewinners in the classes for Cinerarias were Messrs. H. Gay, gardener to L. Daubeney, Esq.; W. Burridge, gardener to S. Butler, Esq.; and R. B. Cater, Esq.; and for Calceolarias, Messrs. Burridge and W. J. Mould, who took the prizes in the order named.

CUT FLOWERS.

Several excellent stands of cut Roses were shown, Messrs. Cooling and Son taking the first position with wonderfully fine blooms of Maréchal Niel, and very good blooms of Niphetos, Alba Rosea, Madame Willermoz, President, Hippolyte Jamain, Beauty of Waltham, and Mons. E. Y. Teas. R. B. Cater, Esq., was a very close second, his stand comprising fine blooms of La France, A. K. Williams, Catherine Mermet, Marie Van Houtte, Rubens, and Maréchal Niel. Mr. W. W. Kettlewell took the third prize, and others exhibited creditably. Tulips were well shown by Messrs. C. Cole, A. A. Tanner, and H. Hooper. Pansies by H. Hooper, W. Meddick, A. T. Hall, and F. Hooper, who took the prizes in the order named. The collections of twenty-four bunches of choice flowers were deservedly greatly admired, the winning stands comprising several good Orchids. Messrs. F. Perry, E. S. Cole, and W. J. Mould were the prizewinners. Hand bouquets were not extensively shown, but those staged by Messrs. S. Wakeham, gardener to J. W. Lovibond, Esq., T. Pearce, and E. S. Cole were highly creditable, the last named exhibitor being, however, rather hardly used. The epergne exhibited by Mr. H. S. James, gardener to A. Laverton, Esq., Farleigh Castle, was highly creditable, and for choiceness of flowers and taste in arrangement was deservedly awarded the first prize, Messrs. E. S. Cole and E. T. Hill also showed great taste, and were awarded the remaining prizes as named.

FRUIT AND VEGETABLES.

Mr. R. Miller, gardener to W. H. Long, Esq., Rood Ashton Park, Trowbridge, was the only exhibitor of a Pine Apple, and secured the first prize for a medium-sized fruit of Charlotte Rothschild. Mr. H. S. James had a similar award for a well-ripened fruit of Hero of Lockinge Melon. Mr. J. H. Vallance, gardener to J. C. Wall, Esq., Bristol, was the only exhibitor of Grapes, and was awarded the first prize for remarkably good and well-finished bunches of Black Hamburgh. Mr. Vallance also exhibited large well-ripened bunches of Foster's Seedling Grapes, and a good dish of Hathaway's Excelsior Tomatoes. Strawberries in pots were, on the whole, scarcely so good as usual, though no fault could be found with the examples of Oscar which gained Mr. J. Western, gardener to the Rev. C. C. Layard, the first prize. Mr. Jones was second with creditable pots of President. Mr. E. F. Collings had the best dish of Strawberries, variety Marguerite, and was followed by Messrs. Western and Jones. A dish of Uvedale's St. Germain Pear, staged by Mr. Burridge, gained the first prize; and in a larger class for Apples Mr. E. T. Hill was successful with Dutch Mignonne, Mr. J. Southard following with Newtown Pippin. Several fairly good collections of vegetables were shown, Mr. G. Garaway being successful with nine varieties, and was followed by Messrs. J. Western and Burridge. In the winning tray were good dishes of Mona's Pride Potatoes, Garaway's Late White Broccoli, American Red Top Turnips, Negro Long-pod Kidney Beans, and Wheeler's Improved Cabbage. Messrs. W. Smith, J. Horsell, and R. Fowler were successful with six dishes of vegetables; and Messrs. H. P. Westcott, H. Scott, E. Chedzey, W. Burridge, J. Curtis, G. Pymm, A. Hawkins were prizewinners in the various other classes for vegetables. The cottagers also staged a creditable lot of vegetables and common flowers.

Messrs. Cooling & Son, Bath, arranged groups of Clematises, Rhododendrons, Hybrid Perpetual Roses, miniature and single Roses, all extremely pretty, Pelargoniums and other plants, which added materially to the general effect. They also had a magnificent stand of Maréchal Niel Roses. Pansies were largely shown by Mr. Hooper; and Messrs. Cross and Steer sent cut blooms of a very fine nearly white Carnation named Louisa Ashburton.

ASPLENIUM HORRIDUM.

At the last meeting of the Royal Horticultural Society (May 13th), Mr. B. S. Williams, Upper Holloway, exhibited a plant of the distinct bold Fern *Asplenium horridum*, which was at once honoured with a first-class certificate. The species has long been known, having been described by Kaulfuss, and is included in Hooker's "Synopsis Filicum," but we believe it has not been previously introduced to cultivation, though Mr. Williams has had it for several years. In the plant shown the fronds were about 2 feet long, with pinnae 4 or 5 inches in length, but when mature they are frequently 3 feet long and 1 foot broad. Though these

are the extreme dimensions mentioned by Hooker, it is probable that under cultivation the fronds will become considerably larger, and the Fern will then have a majestic appearance like a dwarf Dicksonia. The fronds are dark green, rigid, and thick in substance, with a dark brown or black stipes and rachis, the lower portion being often clothed with rough brown scales, which impart a peculiar appearance to the plant, and to this is probably due its rather forbidding name.

The species is a native of the Sandwich Islands, being also found in Java, and is well represented in the woodcut (fig. 94), for which we are indebted to Mr. Williams.

BLUE FLOWERS.

HAVING seen the request of "Conservative Rose," on page 382 of the *Journal of Horticulture*, for the names of blue flowers, I have noted

cærulea, *Pleroma elegans*, *Psoralea pinnata*, *Tropæolum azureum*, and *Wissenia corymbosa*. This last is almost continually in flower.

This list might easily be greatly extended by including annuals and biennials, and also many rarer alpine plants. Those mentioned may however, be procured without difficulty.—G. GUTHRIE.

VINES BLEEDING.

WHEN we read week after week the different opinions of Vine-growers on the subject of Vines bleeding, it is a relief to see a sentence like that in the article by Mr. J. E. Waiting in your issue of May 1st, in which he makes the assertion that "Bleeding is a great injury to Vines, and water is the cause." Surely after that discussion ought to cease; but unfortunately there are a few who, like myself, do not rely sufficiently upon this statement to allow the matter to rest there, especially after the conflicting statements made in his article. Having seen as young Vines as those he mentions to which a liberal supply of water was given during

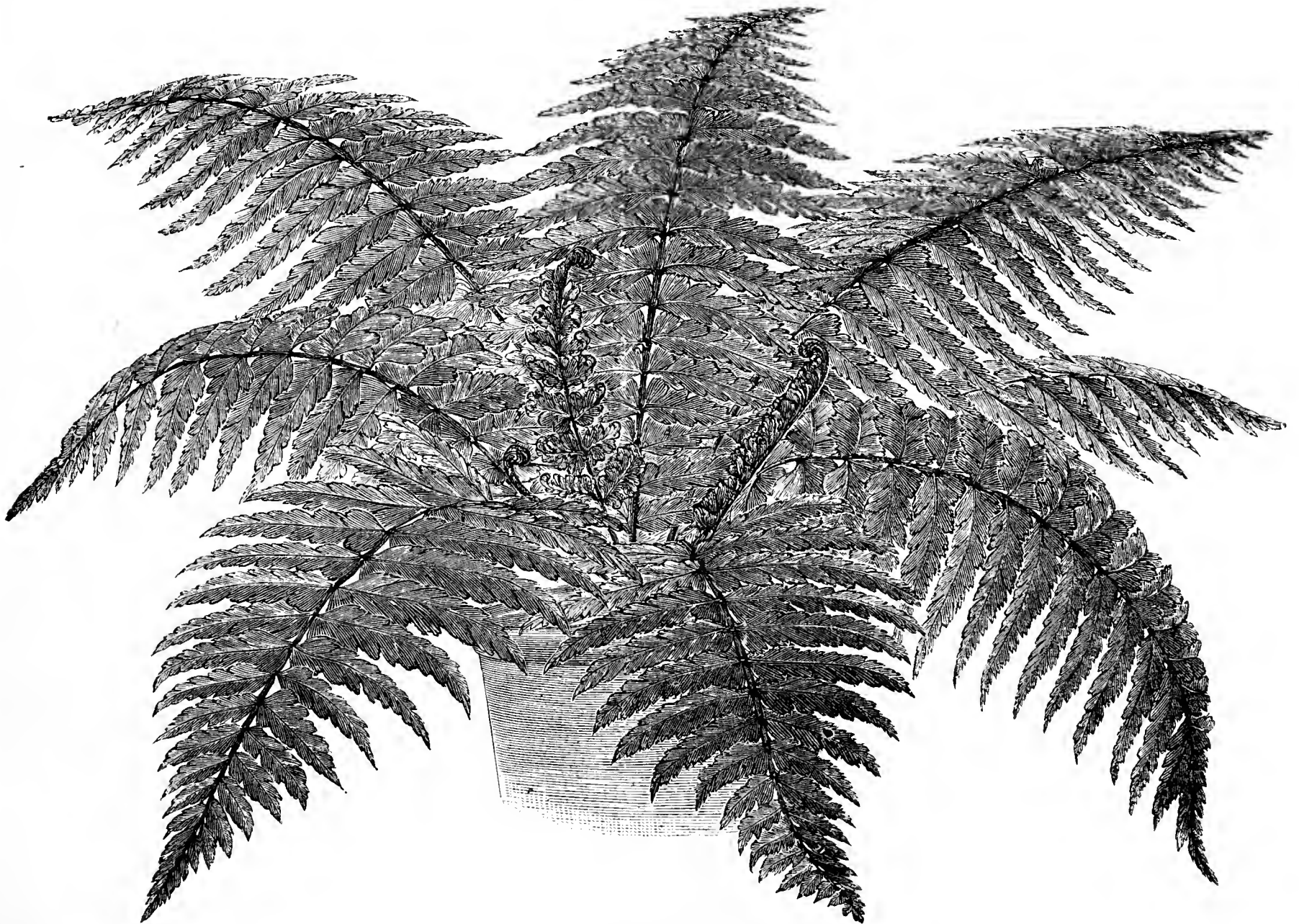


FIG. 94.—ASPLENIUM HORRIDUM.

the names of a few, mostly hardy perennials, and endeavoured to divide them as desired, only observing there must be of necessity a certain amount of overlapping, owing to difference of soil and situation, and also the somewhat erratic nature of our climate.

Spring.—*Anemone apennina* blanda, *Robinsoniana*, *Eritrichum nanum*, *Hepatica angulosa*, *triloba cærulea*, and *cærulea fl.-pl.*; *Muscari*, several species, and *Symphytum caucasicum*.

Summer.—*Aconitum pyramidale*, *Adenophora liliifolia suaveolens*, *Ajuga Brockbanki*, *Anchusa italica*, *Aphyllanthes monspeliensis*, *Borago laxiflora*, *Camassia esculenta*, *Campanula celtidifolia*, *garganica*, *persicifolia*; *Centaurea montana*, *Cichorium Intybus*, *Commelina cœlestis*, *Cyananthus lobatus*, *Cynoglossum montanum*, *Echinops Ritro*, *Eryngium amethystinum*, *Globularia trichosanthes*, *Linum perenne*, *Lithospermum prostratum*, *Pentstemon Jeffreyanum*, *Polemonium cæruleum* and *Richardsoni*, *Scabiosa caucasica* and *graminifolia*, *Sisyrinchium bermudianum*, *Trachelium cæruleum*, *Vinca herbacea*, *Viola pedata*, and *Wulfenia carinthiaca*.

Autumn.—*Aconitum autumnale*, *Campanula (Platycodon) autumnalis*, *Aster pilosa*, *pyrenaica*, *Shortii*.

Greenhouse.—*Agapanthus umbellatus*, *Agatheia cœlestis*, *Dianella*

winter and in the spring before starting, and no bleeding result, I come to the conclusion that though water indiscriminately given may be one of the causes of bleeding, yet it is not the sole cause.

Mr. Waiting says, "Old Vines, especially those planted inside, seldom receive half sufficient water neither summer nor winter, and this is the chief reason why Vines do not do well on the back walls of vieries." If this is the case, how does he reconcile it with the statement which he makes that water is the cause of bleeding? His statements amount to this—To grow Grapes successfully we must water heavily summer and winter, and if we do this the Vines will bleed; and, to follow his argument, if Vines bleed, they will suffer severely. But even on the point of Vines being injured by bleeding, I am not afraid to join issue with him. I have seen Vines bleed, though from other causes than overwatering, and I have also carefully watched them during the seasons following, and without exception I have found those that have bled do as well as those which did not bleed. In fact, I have now under my notice two Vines which have bled profusely in a house along with others which have not bled, and they are as healthy and are showing as good bunches as the others. Perhaps Mr. Waiting can tell us how it is that very often one or two Vines in a house bleed while all the others do not, though all receive the same supply of water.

But has he sufficient data for the assertion that an insufficient supply of water is the chief reason why Vines do not do well on back walls of vineries? I know some Vines treated liberally to water, and yet they fail to give a good crop. Might we not look for a more weighty reason in the fact that light is at least partially excluded by the front Vines? May I also ask your correspondent how he succeeded in getting Vines to bear, age, and to finish such a crop of Grapes so that from the roof to the floor the bunches were overlapping each other? My credulity is not sufficiently great to allow me to accept that statement without some proof. I should very much like to see those Vines, and should I ever visit Grange-over-Sands I shall make it a point, if Mr. Waiting does not object, to visit him.—JUSTITIA.

COBURGIA INCARNATA.

THIS member of the Amaryllis family I have recently grown, and found it to be a very handsome free-flowering plant. In general appearance it is much like the Imantophyllums, especially as regards the foliage, and if grown as a companion plant to that it cannot fail to prove acceptable, the spikes with their umbels of rich flesh-coloured flowers showing, as they do, to much advantage in a collection of plants. A point, too, in favour of them is their duration, each umbel of blooms keeping fresh and beautiful quite a month. We have thus had Coburgias in bloom since November, and our two last plants are now in full beauty. I have seen them described as half-hardy plants, and doubtless they are much more hardy than the Imantophyllums, but grown under similar conditions to the latter I have found them thrive well. A strong rich loam, with abundance of water during the growing period, and firm potting, are requisite. I find that by occasionally turning the plants round after the flower-spikes have attained their full height the beauty of the bloom is enhanced, as it causes them to fall gracefully and regularly round the top of the spike; otherwise the blooms are apt to all lean to one side. These plants are readily propagated by offsets, and grown as above will bloom the second season.—W. W. C.

NOTES FROM A SCOTTISH GARDEN.

THE BERMUDA LILY.—We have had some plants of this fine early-flowering Lily, the blossoms of which have lately unfolded their glistening petals. It is not well, perhaps, to estimate beauty by inches, but it is the only way by which some idea can be presented to the mind of those unacquainted with a flower like this, to give a statement of its size. The flowers are snowy white, with petals recurving and reflexed to the tubes, and measuring from tip to tip 7 inches across, the length of the tube being 6 inches. The perfume is rich and powerful. If such a plant does not become popular when once known, it must be because of some difficulty in its cultivation which has not as yet become apparent. I intend seeding the plants if possible and raising a stock of seedlings—a slow process, doubtless, but worth waiting for. The plants are amenable to forcing.

STAGE AURICULAS.—How handsome these are just now! I have a sufficient number of flowering plants to make quite a show in the greenhouse; and though they are not brilliant like Pelargoniums or Azaleas, but only sober little folks, with a good deal of "grey" in their composition, still they have an attractiveness about their puritanism, with such a pronounced perfume of Primrose banks floating over where they stand, that we cannot but love them. Gardeners seem to look at them askance and say, "Good enough for people who have nothing else to do but to potter about; such things are of no use in a big garden." Auriculas are quite as easy to manage as are Chrysanthemums, and there is less labour attached to their cultivation. If people place them in a hothouse from one end of the year to another, or consider they are doing their best for the plants if they repot them once in three years, perhaps relegating them to a corner of a cold frame, and there neglect the watering, it is not surprising if they fail.

I append the names of a few good sorts, mostly strong growers and showy. Self-edged varieties are most admired by beginners, but with experience the other sections become the more attractive. Of selfs the best are C. J. Perry, Lord of Lorne, Formosa, Eliza, Othello, Topsy, Pizarro, Mrs. Sturrock, and Blackbird. Of those with grey edges—Beauty, Robert Trail, George Lightbody (Headly), Atlas, Dr. Horner, Lancashire Hero, Alexander Meiklejohn, Richard Headly, and Confidence. Of white-edged sorts—Smiling Beauty, Aeme, Smith's Ne Plus Ultra, Glory, Mrs. Campbell, Sophia Dumaresque; and of sorts with green edges—Colonel Taylor, Imperator, Lovely Ann, Anna, Lyeurgus, and Admiral Napier.

REINE MARIE HENRIETTE ROSE.—This almost crimson Rose may now be looked upon as taking a high standard position. Maréchal Niel, Niphetos, then our subject, after that Gloire de Dijon and Cheshunt Hybrid when well established is the order in which I would place these. It is a free and strong grower, flowers to a bud, and produces beautifully green and well-

developed foliage. To those who have not as yet introduced this desirable kind into their gardens, no better advice could be offered than to procure it and plant at once.—X.

READING SHOW.

MAY 15TH.

WHEN the large tent in the Abbey Ruins at Reading is well filled there are few provincial shows which surpass this in beauty and effect. The terraced banks on each side permit of a very striking disposition of the exhibits, and under Mr. Phippen's able superintendence these are always displayed in the best possible manner. Unfortunately at the last autumn exhibition the competitors were not so numerous as might have been desired, and the show in consequence had a most unusual thin appearance. At the Exhibition held on Thursday last, however, ample compensation was made for past defects both in the number and quality of the exhibits. There was a due proportion of flowering and fine-foliage plants, though the groups arranged for effect were less numerous than usual, and rather less tasteful also; the competition in most of the leading classes was fairly good. The one great feature of the Show was the magnificent group of plants not for competition, contributed by Mr. Lees, which, being arranged upon the large semicircular mound at the end of the tent, had a most imposing effect, and attracted the admiration of all visitors.

Stove and Greenhouse Plants.—The principal class was that for twelve specimens, in which two well-known exhibitors entered—namely, Mr. James of Lower Norwood and Mr. Tudgey of Waltham Cross, but the first-named secured the premier award with comparative ease, for Mr. Tudgey's plants were not up to his usual high standard. On the other hand Mr. James's specimens were all good, healthy, and fresh, some being exceedingly meritorious. *Erica Cavendishiana*, for instance, 6 feet high and as much in diameter, well flowered, and thoroughly healthy, was a strong point in the collection. *Anthurium Andreanum*, too, was represented by what is probably the finest plant in the country, in splendid health and bearing fourteen of its large brilliantly coloured spathes. *Erica Lindleyana*, 6 feet high and 3 feet in diameter, very even, and profusely flowered, was also extremely attractive. Mr. Tudgey's best specimen was a gigantic *Erica Cavendishiana*, 6 feet high by 7 feet in diameter; *Clerodendron Balfourianum* and *Erica ventricosa* were good, but several other plants were weak. The best six specimens were from Mr. Mould, Pewsey, which were very neat and fresh, though not so large as the preceding. *Erica Cavendishiana*, 3 feet high; *Bougainvillea glabra*, slightly larger; *Pimelea Nieppergiana*, a very beautiful globular specimen 3 feet in diameter and profusely flowered; *Clerodendron Balfourianum*, *Pimelea Hendersoni*, and *Azalea Sir Charles Napier* were also well flowered. Mr. Mortimer, gardener to Major Storer, Purley Park, followed very closely, his plants including a handsome example of *Tabernaemontana coronaria* 5 feet across, but though in the best possible condition as regards health, the flowers were not quite expanded, and a week later the plant would have been much more effective. *Bougainvillea glabra*, *Rhynchospermum jasminoides*, and *Medinilla magnifica* 6 feet high, were the best of the other plants. Two collections of four specimens were staged. Mr. Baskett, gardener to W. J. Palmer, Esq., Reading, won chief honours with neat examples of *Anthurium Andreanum*, *Vinca alba*, a *Clerodendron*, and *Bougainvillea*. Mr. Armitage, gardener to W. Clarke, Esq., Reading, took the second place, showing *Begonia Snowflake*, *Chrysanthemum frutescens*, and *Chorozema Chandleri*, very neat and fresh. For a single specimen Mr. Mould was first with *Boronia pinnata*, globular, 4 feet in diameter, well flowered, and extremely healthy. Mr. James followed very closely with *Erica depressa* 4 feet high, fresh and well flowered.

Ferns.—Several particularly fine collections of these were shown, and rarely have Ferns been better represented at Reading than on this occasion. Mr. Mortimer's premier exhibit of fifteen specimens was especially praiseworthy, the plants being all distinguished by a remarkable vigour that indicated the most careful culture. *Adiantums* were particularly fine, *A. gracillimum*, *A. cuneatum*, *A. concinnum latum*, and *A. formosum* being the largest and best. *Gymnogramma peruviana argyrophylla* was grandly shown; other noteworthy plants being *Selaginella Galeottii*, *Platynerium alecorne*, and *Lycopodium squarrosum*. Mr. Mayne, gardener to Miss Moon, Reading, followed with much smaller plants, mostly in baskets, but very pretty. By far the largest plants were those staged in the class for six Ferns, in which Mr. Mortimer was again the most successful exhibitor, securing the chief position with exceedingly handsome specimens, including *Davallia Mooreana* 6 feet across, *Alsophila australis* 7 feet high, *Adiantum eultratum* as much in diameter, *Dicksonia antaretica* nearly 8 feet high, *Adiantum eardiochlena* 7 feet across, and *Davallia bullata* 5 feet in diameter, extremely fresh and beautiful. This collection was one of the most meritorious in the whole Exhibition, considering the excellent condition of the plants, every one of which was fresh healthy. Mr. Mould took the second place, also with well-grown plants, his *Gleichenias Mendelli* and *rupestris* being in most praiseworthy condition. Mr. James secured the third position, and his Ferns, like those in the two preceding collections, deserved high commendation for their freshness. These three exhibits contributed greatly to the beauty of the Show. In a smaller class Mr. Armitage was the chief prizetaker.

Fine-foliage Plants.—Though less numerous than the Ferns, these held almost as imposing a position in the tent, owing to the great size of the plants entered. Mr. Mortimer, who was very successful in all the principal classes, was again first with six fine-foliage plants, staging admirable specimens of *Pandanus Veitchi*, *Croton majesticus*, and *C. Weismanni* beautifully coloured, *Alocasia Thibautiana* and *A. metallica* very handsome, and *Yucca aloifolia variegata*. Mr. Tudgey's plants, which were placed second, were considerably larger, especially his well-known *Pritchardia pacifica*, which is upwards of 12 feet high. Two Cycads were also of great size, but they were not so fresh and even as in the winning group. Mr. James was third, his most notable plants being a very large *Pandanus Veitchi* and *Theophrasta imperialis*.

Orchids.—Only two classes are provided for these—namely, one for three plants, and the other for a single specimen, but in both some excellent examples were staged. Mr. James won the first place with an admirably grown plant of *Odontoglossum vexillarium* bearing about forty flowers, *Lælia purpurata* with sixteen large and richly coloured flowers, and *Dendro-*

bium nobile profusely flowered. Mr. Mortimer took the second place, *Dendrobium thysiflorum* having seven spikes, *Vanda suavis* two spikes of twelve flowers each, and *Dendrobium densiflorum* with forty-five spikes, a remarkable specimen, which nearly gained the first prize for the collection. Mr. Baskett was third, his plants being *Cypripedium caudatum*, *Cattleya Mossiæ* with nine flowers, and *Dendrobium thysiflorum* with seven spikes. The same exhibitor was first with a single specimen *Cymbidium Lowianum*, having two spikes of sixteen flowers each. Mr. James was second, showing *Cattleya Mendelli* bearing thirteen flowers.

Groups.—In the class for a group of plants arranged for effect in a space of 12 feet by 10 feet, Mr. Phippen, Reading, won the leading prize, but the arrangement was not quite so effective as that usually distinguishing his contributions. The groundwork consisted of miscellaneous plants, such as *Spiræas*, *Pelargoniums*, *Coleuses*, with taller plants of *Campanulas*, *Lilies*, *Chrysanthemum frutescens* *Etoile d'Or*, and a back of *Palms* and *Pandanus*, the margin comprising *Isolepis* and *Selaginellas* alternately. Mr. James was placed second, but the group scarcely merited a place, for it was extremely thin and dull, though including several good Orchids. The competition was keener in the class for a group 6 feet by 4 feet, but even in that there was a falling-off in artisticness. Mr. Woolford, gardener to H. Palmer, Esq., was adjudged first honours for a bright collection of *Calceolarias*, *Gloxinias*, *Ericas*, *Rhododendrons*, *Richardias*, *Lilies*, and *Lobelias*, with a due proportion of Ferns. Mr. Hatch, gardener to S. B. Stevens, Esq., Reading, followed, *Roses*, *Begonias*, *Coleuses*, *Pelargoniums*, and *Nephrolepis* forming the chief features. Mr. Sumner, gardener to J. H. Millard, Esq., Reading, was a good third, having a graceful and pretty group, in which *Fuchsias*, *Pelargoniums*, and *Azaleas* chiefly predominated. Extra prizes were awarded to Mr. Balchin, gardener to B. Simonds, Esq.; Mr. House, gardener to J. O. Taylor, Esq., and Mr. Mayne in this class, all the groups being bright. A magnificent bank of *Rhododendrons* from Mr. Ashby, gardener to W. Fanning, Esq., gained him the first prize in the class for those plants, but it is to be regretted that only one collection was staged, as the effect of the show would have been much improved had there been two or three competitors.

Azaleas.—Several collections of remarkably well-flowered specimens were staged in the classes for *Azaleas*, especially noteworthy being those from Mr. Lockie, Oakley Park Gardens, Windsor, in the class for six plants in 8-inch pots. These were beautifully even examples, and deservedly secured Mr. Lockie the first prize. They were about 2 feet high, and covered with large bright flowers, the best being *Model*, *Lady Scott*, *Warrior*, *Eclatante*, and *Mdlle. Verschaffelt*. Mr. Armitage and Mr. Baskett were respectively second and third with less profusely flowered plants. Mr. Lockie was again the premier exhibitor of four *Azaleas*, showing perfect little globes of flowers, extremely handsome; *Reine des Pays Bas*, *Roi d'Holland*, and *Duchesse Adelaide de Nassau* were the best. Mr. Mortimer was a close second with neat plants.

Pelargoniums are generally in strong force at Reading, and, though not quite so numerous as usual, some creditable plants were staged. Mr. Ashby had the best nine specimens of show varieties, each about 3 feet in diameter and flowering profusely. *Ruth*, *Empress*, *Triomphe de St. Mandé*, *Claribel*, *Crimson King*, and *Duchess of Edinburgh* were the principal varieties, the last bearing a great number of fine flowers. In other classes Mr. Mortimer and Mr. Powell, gardener to G. Gilligan, Esq., Reading, were the prizetakers. Mr. Mould was the only exhibitor of six *Ericas*, taking the first position with admirably neat and well-flowered specimens. The same exhibitor was first with six *Roses* in pots, Mr. Tranter of Upper Assenden also scoring a success with *Roses* in another class. Mr. Baskett took the lead with six *Gloxinias* in 32 and 24-size pots, with about two dozen blooms each, fine in substance and colours. Mr. Farey, gardener to O. Stephens, Esq., Woodley Hill, and Mr. Mortimer were the other prizetakers, the last having a handsome plant of *Boule de Neige* with about thirty flowers. Bright and beautiful plants of *Calceolarias* were contributed by Messrs. Baskett, Lockie, and Hatch. Table plants were represented by some very creditable specimens; those from Mr. Ross, Welford Park Gardens, Newbury, for which the first prize was awarded, were very neat and well grown, the soil being surfaced with *Selaginella*. *Pandanus Veitchi*, *Yucca variegata*, *Croton Eyresi*, *Caladium argyrites*, and a pretty narrow-leaved seedling *Croton* being the best. Mr. Baskett, who followed, had larger plants. *Fuchsias* were not of remarkable beauty, but were fairly well flowered. Messrs. Sumner, Mortimer, and Mayne were the prizetakers.

Cut flowers were numerous and well shown. The best general collections of stove and greenhouse were from Messrs. Ross, Mortimer, Woolford, James, and Phippen, all including good examples of the most useful and attractive of indoor plants. *Rose* blooms were well represented by Messrs. Gurden, Tranter, and Elliott. *Pansies* were chiefly shown by Mr. Bridge, gardener to J. F. Hall, Esq., Erleigh Court; Mr. Lawrence, gardener to Mrs. Owen Knox, Carshalton; and Mr. Shrimpton. Table decorations, bouquets, and button-holes were contributed by several exhibitors, the leading prizes being secured by Mr. Phippen.

Fruit.—The display in the classes for fruit was rather small. For two bunches of black Grapes Mr. Howe, gardener to Sir R. Sutton, Benham Park, was first with Black *Hamburgh* well coloured, the bunches and berries of good size for such early fruit. Mr. Ashby and Mr. Baskett followed with the same variety. In the white Grape class Mr. Ashby took the first prize with fairly good *Foster's Seedling*, Mr. Baskett being second with the same variety, but rather green. Mr. Howe had the best dish of *Figs White Marseilles*, and Mr. Mortimer contributed the best dish of *Strawberries* Sir Joseph Paxton, fine, even, and beautifully ripened.

Vegetables.—Three creditable collections of vegetables were entered, Mr. Lockie gaining the premier award with most praiseworthy examples of *Lyon Leeks*, *Royal Windsor Cucumbers*, *American Wonder Peas*, *Sutton's Reading Perfection Tomatoes*, *Royal Ashleaf Potatoes*, *Mammoth Negro Beans*, *French Horn Carrots*, *Queen Onions*, *Late Queen Broccoli*, *Asparagus*, *Cabbage*, &c. Mr. Howe, who was placed second, also had a good collection, his *Ne Plus Ultra Cucumbers*, *Tomatoes*, and *Asparagus* being particularly fine. Mr. Read, gardener to J. Wilder Esq., Purley Hall, followed with a good representative collection. In other classes for *Potatoes*, *Peas*, *Beans*, *Asparagus*, *Broccoli*, and *Rhubarb*, Messrs. Read, Elliott, Lockie, Clark,

Balchin, and Lipscombe were the prizetakers. Messrs. Sutton & Sons' prizes for *Cucumbers* and *Potatoes* brought a number of competitors, all staging good examples. For a brace of *Cucumbers* Mr. Mortimer was first with *Purley Park Hero*, very even and handsome. Mr. Howe and Mr. House followed closely. For a dish of kidney *Potatoes* Mr. Lockie was first with *Sutton's Early Ashleaf* and second with *Sutton's Ringleader*. For round *Potatoes* Mr. Howe led with *Early Market*, and Mr. Lockie second with *First and Best*.

Miscellaneous.—By far the most important of the non-competing exhibits was the group of plants from Mr. Lees, gardener to Mrs. Marsland, The Wilderness, Reading. This consisted of a groundwork of Ferns, *Azaleas*, *Begonias*, *Auriculas*, *Selaginellas*, and *Panicum variegatum*, with taller *Palms*, Ferns, and *Fuchsias*, to impart a diversity to the display. Mr. C. Turner, Slough, exhibited collections of *Pelargoniums*, *Carnations*, *Roses*, and *Alpine Auriculas*, including a large number of fine varieties, several of which were certificated. Mr. J. Fyfe had a box of twelve good *Auriculas*. Boxes of handsome *Maréchal Niel* *Rose* blooms were shown by Mr. Tranter, and *Clematises* by Mr. Bridge. For most of the above extra prizes were awarded, and certificates were adjudged for the following plants, a certificate of merit being awarded to the Chadborn & Coldwell Company, Upper Thames Street, London, for their *Excelsior* lawn mower.

To Mr. Turner for *Carnations* *Mrs. Maclaren*, crimson bizarre, previously certificated at Kensington; *Hector*, bright scarlet self, fine colour, and well-formed substantial flower; *Rufus*, deep scarlet self, very rich and effective; *Ruby*, purple self, a beautiful soft tint; and *Mrs. Llewelyn*, a rosy pink self, large full handsome bloom.

Alpine Auriculas *Mrs. Ball*, rich crimson shaded, pale tube, bold handsome flower, very free; *Homer*, deep red shaded, bright gold tube, distinct; and *Eclipse*, crimson purple shaded, gold tube, rich and effective.

SYRINGING VINES.

I FIND one of your readers has been trying Hudson's dry soap in water to syringe his Vines, and is very much alarmed what the result will be. To attempt to syringe Vines in flower to clear off the blossom and pollen is bad enough, but using soapy water when the berries are not thinned, with great fire heat and a treacherous sun shining, rust is sure to follow, as the whole mass gets baked on the berries, and once done no after syringing will remove it. Clear water would do the same. I shall be very sorry if any harm occurs from this misapplication. Never syringe the bunches from the time of coming into flower until they are thinned, a few days later is better.—J. E. WAITING, *Grange-over-Sands*.

ROYAL BOTANIC SOCIETY.

MAY 21ST.

BEAUTIFUL as the summer Exhibitions of the Royal Botanic Society invariably are, that held on Wednesday last was, in the opinion of many, the finest they have ever had thus early in the season. From whatever point the Exhibition was viewed, the effect was grand in the extreme. Glowing masses of colour were furnished by the profusely flowered specimen *Azaleas*; rich and soft shades of blue, purple, and mauve by the unrivalled *Clematises*; rich green foliage by Ferns and *Palms*, and exquisite indescribable tints by the extraordinary collections of Orchids. The nurserymen's groups also, which occupied the central banks, were unusually elegant, and the whole arrangement of the Show indicated the most careful and tasteful superintendence. Mr. Coomber, indeed, deserves the greatest praise for the admirable and effective manner in which the several classes were disposed and the colours contrasted, blended, or softened. Extremely favourable weather induced the attendance of a large company of distinguished visitors, and the general impression was that the Exhibition was one of the greatest successes hitherto scored by the Society.

ORCHIDS.—A superb display of Orchids was provided, no less than six handsome collections being entered in the amateurs' class, forming a bank of unequalled beauty. The *Dorchester* plants were magnificent, the grand plant of *Cattleya Skinneri* being awarded the *Veitch Memorial* medal in the class for the best Orchid in the Show. It was about 4 feet in diameter, with twenty-four trusses of six to eight flowers each of the most lovely soft rosy crimson imaginable. *Thunia Marshalli*, *Dendrobium nobile*, *Masdevallia Harryana splendens*, *Dendrobium pulchellum*, and *D. Falconeri* were similarly noteworthy. The *Sydenham* plants were profusely flowered; *Dendrobium thysiflorum* with seven spikes, *Cymbidium Lowianum* with four grand spikes, *Masdevallia Harryana*, fine colour; *Oncidium Marshallianum*, with a magnificent panicle; *Cypripedium caudatum*, with twenty flowers, and others similarly good. The most effective plant in the Bickley collection was *Sobralia macrantha*, with two dozen handsome flowers. In addition to the prizetakers a large silver medal was awarded to Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, for some handsome specimens; a silver medal was also adjudged to Mr. J. Douglas, gardener to F. Whitbourne, Esq., Great Gearies; and a large bronze medal to Mr. J. Child, gardener to W. J. Bell, Esq., Garbrand Hall, Ewell, for exhibits in the same class. Only three collections were entered in the nurserymen's class, and the plants generally were not so large or remarkable as in the amateurs' section. Mr. James, however, had some

handsome Cattleyas and a deep-coloured *Odontoglossum vexillarium*. The prizes were awarded as follows:—Twelve Orchids (amateurs) first Mr. Powell, gardener to W. E. Brymer, Esq., M.P., Ilslington House, Dorchester; second Mr. Catt, gardener to W. Cobb, Esq., Silverdale Lodge, Sydenham; third Mr. Heims, gardener to F. A. Philbrick, Esq., Q.C., Oldfield, Bickley. Nurserymen: first Mr. James, Upper Norwood; second Mr. Cypher, Cheltenham; third Messrs. Jackson & Son, Kingston.

AZALEAS.—The exhibits in these classes furnished a most welcome display of colour. Rarely are they seen in finer condition. The Slough plants were particularly fresh and beautiful, neat pyramids of Cordon Bleu, Mrs. Turner, Apollo, and Reine des Fleurs being especially notable; while in the larger specimens *Comtesse de Flandres* 6 feet high and across, *Duc de Nassau* and *Chelsoni*, similar, were grand. Mr. Child's plants were grandly flowered, *A. concinnum* Magnet and Model being so densely covered with blooms that the foliage was scarcely visible. The prizetakers were—twelve Azaleas (open) first Mr. C. Turner; second Mr. H. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate; third Mr. James. Six Azaleas in 12-inch pots (amateurs) first Mr. J. Child, gardener to W. J. Bell, Esq., Garbrand Hall, Ewell; second Mr. J. Wheeler, gardener to Lady Goldsmid, St. John's Lodge, Regent's Park; third Mr. Eason. Six Azaleas (nurserymen) first Mr. C. Turner, second Mr. Cypher. Six Azaleas (amateurs) first Mr. Child, third Mr. Wheeler.

STOVE AND GREENHOUSE PLANTS.—The majority of the plants shown in these collections were in fresh and excellent condition, but Mr. Chapman's plants deserve especial praise for their vigour. *Ixora coccinea*, *Erica affinis*, *Aphelaxis grandiflora*, and *Anthurium Schertzerianum* with nearly one hundred spathes were remarkably fine. *Acrophyllum venosum* and *Erica Cavendishiana* were also finely shown in the smaller class. Mr. Chapman also secured the Veitch Memorial medal for the best stove or greenhouse plant in flower—namely, a specimen of *Hedera tulipifera* about 6 feet high and rather more in diameter, globular, even, and covered with large flowers. Mr. Cypher's specimens were also handsome, though some were scarcely in the best condition. *Erica depressa* 5 feet high and as much in diameter was greatly admired. The prizes were awarded as follows:—Twelve specimens (nurserymen) first Mr. J. Cypher, Cheltenham; second Mr. H. James, Lower Norwood; third Messrs. Jackson & Son, Kingston. Ten specimens (amateurs) first Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley; second Mr. C. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley; third Mr. Child. Six specimens (amateurs) first Mr. Chapman, third Mr. Wheeler. Six specimens (nurserymen) first Mr. Cypher, second Mr. Mould, third Mr. E. Tudgey.

ROSES.—The Cheshunt giants and the Slough smaller but beautiful specimens formed the most interesting portion of the display in these classes, and all were equally fine in general condition. Of the former Charles Lawson, Anna Alexieff, and Edouard Morren were the most noteworthy, with superb blooms. Mr. Turner's best were *La France*, *Mad. de St. Joseph* and *Thérèse Levet*. The prizetakers were—Nine Roses (nurserymen) first Messrs. Paul & Son, Cheshunt; third Mr. J. Mould, Pewsey, Wilts. Six Roses (amateurs) first Mr. Wiggins, gardener to W. Clay, Esq., Kingston; second Mr. Tranter, Upper Assenden. Twenty Roses (nurserymen) first Mr. C. Turner; second Messrs. Paul & Son.

PELARGONIUMS.—The competition was good in these classes, and formed a beautiful bank in the corridor near the Rhododendron tent. Mr. Turner's plants were as usual in splendid condition, both Show and Fancy varieties being superbly flowered. Mr. Hill's collection of Show varieties also included some admirably grown plants with large trusses; and his Fancy varieties were equally praiseworthy. The prizetakers were—six plants (amateurs), first Mr. Hill, gardener to H. Little, Esq., Hillingdon Place, Uxbridge; second Mr. Wiggins; third Mr. W. Griffin, Gothic Lodge, Sydenham. Nurserymen: first Mr. C. Turner, second Mr. J. Cypher; third Mr. J. Odell, Shepherd's Bush. Six Fancy varieties (open): first Mr. C. Turner, second Mr. Hill, third Mr. Wiggins.

CLEMATISES.—Messrs. Jackman & Son, Woking, were the only exhibitors in the class for twelve plants, and deservedly secured premier honours for grand globular specimens 5 or 6 feet high, and bearing abundance of handsome blooms. All the varieties were good, but the following deserve especial mention:—*Princess of Wales*, purple mauve, very large; *Madame Van Houtte*, creamy white; *Impératrice Eugénie*, white; *Duchess of Edinburgh*, double, white; *Fairy Queen*, bluish white, striped with rose; and *Lady Caroline Nevill*, delicate mauve, with darker stripes.

FINE-FOLIAGE PLANTS.—The magnificent plants from Crawley were the feature in this class, the gigantic *Areca sapida*, *Latania borbonica*, and *Cycas revoluta* forming the strong points. Mr. Wheeler's plants were chiefly Palms, massive and healthy. The prizetakers for six were (amateurs)—first Mr. C. Rann, second Mr. Wheeler. Nurserymen: first Mr. Cypher, second Mr. James, third Mr. Tudgey.

Three very creditable collections of Heaths were staged, all very healthy, and several exceedingly well flowered. Mr. Tudgey's specimens were in admirable condition, especially *E. coccinea* minor. Messrs. Jackson's best plant was *Erica ventricosa coccinea*, 4 feet across, and a mass of flowers. The prizetakers were for six (open), first Mr. Tudgey, second Messrs. Jackson and Son; third Mr. Cypher.

The entries in the class for six Ferns were comparatively few, and by far the best were those from Mr. Douglas, chiefly *Dicksonias* and *Adiantums* in most vigorous health. First Mr. J. Douglas; second Mr. Wheeler; third Mr. R. Butler, gardener to H. H. Gibbs, Esq., St. Dunstan's Lodge, Regent's Park.

The prizes for Gloxinias were secured by Mr. H. Eason and Mr. C. Rann, both showing fairly good specimens, and Mr. J. Douglas was the only exhibitor of alpine plants, gaining the premier prize for a pretty collection.

GROUPS.—These contributed greatly to the beauty of the Exhibition, the four central groups being uncommonly handsome. A silver-gilt medal was awarded to Mr. B. S. Williams, Upper Holloway, for an extensive collection of choice Orchids, tastefully arranged with Ferns and Palms. Large numbers of species and varieties were represented, the principal of which are enumerated on another page. A silver medal was awarded to Messrs. J. Laing

and Co., Forest Hill, for an imposing group of fine-foliage plants, *Dracenas*, Palms, Crotons, and *Caladiums*, with a margin of choice new tuberous *Begonias*, *Gloxinias*, and Ferns. Messrs. E. G. Henderson & Son, Maida Vale, were awarded a small silver medal for a group of miscellaneous stove and greenhouse plants, *Blandfordias* being largely represented. A similar award was also granted to Messrs. J. Cutbush & Son, Highgate, for a bright and tasteful group of Azaleas and miscellaneous greenhouse plants very freely flowered.

One of the most remarkable groups in the Exhibition was a collection of Crotons from Messrs. R. P. Ker & Son, Aigburth, Liverpool, for which a silver medal was awarded. They included a great number of new and grandly coloured varieties, and the group was much admired by all the visitors, as it produced a fine bank of colour. A bronze medal was awarded to Mr. Archer, The Grange, Highbury, for a group of fine-foliage plants, and to Mr. Mould for a similar group. A silver medal was awarded to Messrs. W. Paul & Son, Waltham Cross, for twenty boxes of Rose blooms, representing a great number of varieties in first-rate condition. A bronze medal was awarded to Messrs. J. Carter & Co., Holborn, for a group of richly coloured *Calceolarias*, compact in habit and bearing large blooms. A small silver medal was adjudged to Messrs. F. Sander & Co., St. Albans, for a group of *Odontoglossum Alexandrae* and Ferns. A bronze medal was awarded to Captain Halford Thompson, Claremont, Exeter, for baskets of plants grown in moss. The New Plant and Bulb Company, Colchester, showed a collection of Japanese Maples. A bronze medal was awarded to Messrs. Barr & Son, Covent Garden, for a choice group of hardy flowers. Mr. H. Hooper, Bath, exhibited boxes of Pansy blooms; Messrs. Cross & Steer, Salisbury, had specimens of their new perpetual *Carnation Louisa Ashburton*, fringed white, with slight pink tinge.

New plants were very numerous, and first-class certificates were awarded for the following:—To Messrs. Laing & Co. for tuberous *Begonias* General Gordon, Distinction, Earl of Chesterfield, T. Hewitt, Lady Chesterfield, Mr. A. Forbes, Mrs. Weekes; *Caladiums*—*Madame Mitzana*, Baron James de Rothschild, and *L'Aurore*; *Gloxinias*—Mrs. Coomber, Beauty, and George Amer. To Messrs. W. Paul & Son for Tea Rose *Etendard de Jeanne d'Arc*. To Mr. James for *Odontoglossum polyxanthum* and *Odontoglossum mulus*. To Mr. Cypher for *Cypripedium Röbelinii*. To the New Plant and Bulb Company for *Acer palmatum roseum* and *A. palmatum aureum*. To Messrs. Sanders & Co. for *Odontoglossum elegans superbissimum*. To Messrs. R. P. Ker & Son for *Ficus elastica variegata*, and Crotons *Flambeau*, *Sunrise*, and *mosaicus*. To Mr. Little for *Pelargoniums* G. Shepherd and Harvester; and to Mr. B. S. Williams for *Cypripedium ciliolare*.



KITCHEN GARDEN.

WHERE all previous directions have been carried out as regards sowing and planting work in this department will now be less pressing than it was some time ago. Most of our hands are now "bedding out" the flower garden or dressing the pleasure grounds; but still there are many little details requiring attention in the vegetable garden which should on no account be neglected, as, although omissions may not be felt just now, they will be by the time the produce is required.

Late Peas.—A large sowing of these should be made for fruiting in September and October. Sutton's Latest of All is the best late Pea we have grown; then comes Laxton's Omega. They are both comparatively dwarf, not growing more than 4 feet high, very prolific, and first-rate in quality. Ne Plus Ultra is much taller, and not so convenient for the majority of gardens. The soil should be deep and rich, the position a sunny one, and as much as possible away from draughts and the haunts of birds. The rows may either be sown in one quarter or in any convenient place throughout the garden. They should never be so close as to crowd each other or obstruct the sun's rays. Stake successional crops of Peas, and as soon as the pods have been gathered from the earliest rows clear the old haulm off at once and fill up the ground with late Cauliflowers.

Tomatoes.—Plants of these which have been grown on and hardened with the object of planting them out should now be placed in their fruiting quarters. The best of all places for them is a sunny south wall. We never grow ours on a wall by themselves, but plant them between the wall trees wherever there is a vacant space. Avoid giving them a rich mixture. Put nothing but loam under the roots; then they will make little or no superfluous wood, bear abundance of fruits, which can easily be assisted with liquid manure. Make the soil very firm about the roots and nail the stem to the wall. Tomato fruits are now plentiful under glass, and the earliest fruiting plants are being much benefited by liberal supplies of liquid manure.

Turnips.—Sow a good breadth of Veitch's Red Globe to come in through August and September. Thin advancing crops; any early quarters which may "bolt," as they are most liable to do, should be cleared off at once, and sow again.

Radish seed should now be sown every fortnight. Small and frequent sowings are the only ones which will give a supply of really tender roots. Early crops are now too large for use, and what remains of them should be thrown away.

Lettuce seed may be sown, as it is from those put in now we have our

supplies during August and September. Tom Thumb or Tennis Ball is a choice summer Lettuce, and the Kingsholm Cos variety is useful in warm weather, being very large, tender, and crisp.

Kidney Beans.—A good sowing of the Canadian Wonder variety should be put into good soil and a favoured position. This is the finest of all the dwarf Beans, and should be grown in every garden. It grows 18 inches high and is rather spreading, and for this reason the seed should be planted singly 6 or 8 inches apart.

Rhubarb and Seakale showing bloom should have all the flower stems cut off to the ground. Asparagus should have a handful of salt put round each crown when it is raining.

Spinach.—The supply of this can only be kept up by frequent sowings at this season. We sow a few rows weekly. The first sowing which has done us good service is now over, and has been thrown away. Lettuces have been dibbled in its place.

Earth up Cauliflowers, Cabbages, early Brussels Sprouts &c., before the plants become top-heavy. Hoe between all growing crops. Do not let weeds gain any size, and on no account allow them to seed.

FRUIT FORCING.

VINES.—*Early Houses*.—Vines that have been cleared of fruit should have a good washing with the syringe or engine, and this should be repeated occasionally, as it is important that the foliage be kept in good condition for as long as possible. Enough water or tepid liquid manure should be given to maintain a moist condition of the soil, and to prevent early resting encourage a moderate extension of the laterals, with a temperature of 60°, ventilating freely on all favourable occasions. Houses in which the Grapes are ripe may be damped occasionally, as a moderate amount of atmospheric moisture will not interfere with the keeping of the Grapes, providing the air is not close; and with a temperature of 60° their requirements will be met as regards heat at night, and a few degrees higher in the daytime. When the sun is powerful it will be advisable to employ a light shading, or Hamburgs will lose colour and flavour.

Houses of Vines with the Grapes Swelling.—To assist the fruit in swelling allow as much lateral extension as can be done without crowding the space with more foliage than can have exposure to light and air, which will maintain activity at the roots and cause nutriment to be taken up freely. Mulch the surface with short manure, which should be well watered, it not being possible to over-water Vines in a healthy state when swelling-off their crops, provided the border is efficiently drained. Ventilate early in the day, increasing it with the sun heat, and keep through the day at 80° to 85°, closing at 80°, when the floors, borders, &c., should be damped so as to secure a genial condition of the atmosphere; and before nightfall sprinkle the floors with guano water or liquid manure, the ammonia from which is highly beneficial to the Vines, and the liability to attacks of red spider is considerably reduced. Artificial heat will only be necessary to prevent the temperature falling below 60° at night, and to insure 70° to 75° in the daytime in dull weather, making up for lost time when the sun shines. Outside borders that lie high and dry must be watered thoroughly in dry weather, having the surface mulched with short manure. Vines bearing Grapes that are beginning to colour require a thorough soaking of liquid manure in a tepid state both to inside and outside border, and mulch if necessary. Continue a good atmospheric moisture, as the Grapes swell considerably in ripening, and ventilate a little constantly. Close early with plenty of sun heat, and maintain moderate heat in the pipes so as to allow a circulation of warm air. If the Vines are carrying heavy crops keep the house rather cool at night, so as to rest the Vines, and thus given a little more time they will be able to finish off the crop satisfactorily, whereas if pushed they would in all probability colour very indifferently. The laterals may be allowed to extend, especially if the crop be heavy and there is space for their exposure to light.

In succession houses keep the stopping and tying regularly performed. Thin Hamburgs as soon as set, and other Grapes as soon as it is seen which to remove by the properly fertilised berries taking the lead.

Early Autumn and Late Houses.—Daily attention will be needed in stopping and tying, laying in laterals as long as there is space for the full development of foliage without crowding. Thin the berries freely, and endeavour to obtain handsome medium-sized bunches in preference to large and loose ones that seldom finish satisfactorily. The Vines from which the latest Black Hamburg Grapes are obtained are now in flower, and will only need artificial aid so as to prevent the temperature falling below 55° at night and to secure 65° in the daytime, a high artificial temperature at this season being apt to draw out the bunches, and Hamburgs with long weak footstalks to the berries do not keep well, besides rendering them loose in appearance. The late varieties are now in flower, and as many of these do not set well pollen should be taken from Hamburgs and applied to the shy setters. As a rule, the thin-skinned Grapes do not need so high a temperature as Muscats, for, although they do well enough under similar conditions of heat in the early stages of growth, but when ripening the heat required for finishing Muscats does not favour the colouring of the black varieties, as they require more time for making and maturing their growth; hence to grow the finer late black Grapes they should have a house to themselves. Houses in which Grapes are stoning must be kept cool and regular in temperature at night, as the Vines in the best of condition must have time, and the roots cannot do more than the process demands, which is certainly an exhaustive one, it being better to allow the supply of nutriment to exceed the demand than want more than they receive, which is only too often apparent in the total cessation of lateral growth during the stoning process. The thinning of

the main crop of Muscats will be completed, and the borders need mulching with good decayed manure, and copious supplies of tepid liquid manure or water are necessary. The outside borders should also be mulched, and in dry weather be given copious supplies of water or liquid manure as may be needed.

Early pot Vines intended for fruiting next spring should be given more air, and the foliage syringed so as to keep it free from red spider, as upon this and a thoroughly solidified and matured growth depends the future success, and this can only be effected by the preservation in health of the main leaves. Feed liberally, so as to secure a well-developed growth.

MELONS.—Plants in flower must have plenty of air in the daytime, not syringing until they have set their fruit, after which it can be brought into use again. Fertilise the flowers daily until a sufficient number on a plant are set, and stop one joint beyond the fruit. When a sufficient number of fruits are set and swelling earth up the plants, giving some good rich rather strong loam, and firm it well, having previously had it in the house to become warmed, and before earthing supply tepid water liberally. Four to six fruits will be sufficient to leave on a plant, apportioning them according to the size of the kind and the individual strength of the plants. Plants swelling their crops should have free supplies of tepid liquid manure, and a moist genial condition of the atmosphere secured by syringing in the early part of the afternoon or at closing time, and damp the house two or three times a day, or whenever the floors become dry. Keep the laterals regularly stopped, and if likely to become crowded thin them out gradually, so as not to give a check to the roots. Close as soon as safe in the afternoon, or from 3 to 4 p.m., and if the temperature rise to 90° afterwards it will be an advantage, keeping through the day at 80° to 85° or 90°, admitting a little air early at 75° to 80°, and increasing it with the heat, not lower, but to keep it from becoming too high. Afford support to the fruit in good time. When the fruit gives indications of ripening cease syringing, but maintain a genial condition of the atmosphere by damping available surfaces occasionally, giving air freely, and maintaining a circulation of warm air constantly, lessening the supply of water to the roots.

Continue the earthing-up of the hillocks in pits and frames as the roots protrude through the sides of the mound, repeating until the allotted space for that purpose is filled. See that the plants do not suffer for want of water, and do not give it so frequently as to sodden the soil—once or twice a week according to the weather will be sufficiently often; and in watering keep it from the collar of the plants so as to avoid canker. If this appear rub quicklime into the affected parts. The shoots of young plants which are now covering the surface of the beds should be thinned out to about four, taking two to the front and the other to the back, and taking out their points when a foot from the sides of the frame or pit. This will result in side or fruit-bearing shoots, and when the flowers on these expand impregnate when the pollen is dry, stopping one joint beyond the fruit. Three or four fruits to a plant are ample according to its strength, and when these are secured remove all the other flowers, male and female, and encourage the swelling by closing early, or from 3.30 to 4 p.m., syringing or sprinkling overhead at the same time. If the temperature does not rise above 90° or 95° no harm will result, but if it do admit a little air for a short time, finally closing at 85°. Keep the laterals closely pinched or thinned as may be necessary, it being important that the foliage be not too crowded and that the main foliage be kept in good condition.

PLANT HOUSES.

Cyclamens.—Where the plants for next autumn and winter-flowering cannot be accommodated in a house by themselves a hotbed should now be prepared in a cold frame. This is the best mode of bringing the plants from warm to cool treatment without receiving any check. The heat derived from a hotbed will assist them at first, and it will cool down gradually without a check to the plants, which is important if good well-grown specimens are to be produced. Young stock raised from seed at the commencement of the year, and still in pans in which they were pricked from the seed pots, may now be placed singly into 2-inch pots, and the hotbed referred to will be a suitable place in which to give them a good start. For a time after potting keep the frame closed, the plants moist and lightly shaded during bright sunshine. Good loam, a third of leaf mould, and a seventh of cow manure with sand may be employed for the compost. The leaf soil can be dispensed with when the plants are placed in their largest pots.

Chrysanthemums.—These are now sturdy plants in cold frames, and if propagated and treated as previously directed will be ready for placing into 6-inch pots. They still need cold-frame protection, for the nights are cold. After potting keep the frame close until the roots are extending, when more air may be given, and the plants grown as cool and hardy as possible, or they will become weakly. The lights should be thrown off during the day when mild, and should be left open all night whenever it is possible to do so. Those required for standards should be supplied with a small upright stake if they need it. The shoots of plants required for bushes should be pinched when necessary. Employ for potting good loam, manure, and sand.

Tree Carnations.—The blooms of few plants are more eagerly sought after during the winter and spring than those of Carnations, and to have them in good condition they require every care and attention. If rooted and placed into 3-inch pots as directed the young plants will have made a good number of roots, and may now be placed into 5 or 6-inch pots. If not quite ready leave them a week or two longer, but do not allow them to become root-bound, for if checked from this cause they may be ruined for the season. The pots in which they are placed should be drained

well and the plants potted firmly in good loam, leaf mould about one-third, and a seventh of cow manure, and a liberal dash of sand. Grow the plants in a cold house or frame, for these plants, like Chrysanthemums, will not bear heat.

THE BEE-KEEPER.

NOTES ON BEES.

VICIOUS BEES.

WHEN bees are accustomed to people and domesticated animals near the apiary they seldom offer an attack unless through some provocation, which they are sure to resent. Incautious manipulation, turning the soil, and pulling weeds or vegetables; certain odours, such as musk and other scents; vinegar and smoke, and allowing bees to have access to honeycomb or robbing other hives, are a few of the many things that irritate them, all of which should be guarded against. One bee irritated and using its sting may set the whole apiary in a frantic and vicious state, which may last for weeks ere they be calmed down. It is possible that bees possess a sense that we are ignorant of. One thing is certain, when people of a nervous temperament manipulate bees there is something that excites them. We can avoid irritating bees in many ways, such as by leaving the apiary for a time when they are inclined to sting or disturbing them as mentioned above; but there are times when all danger has to be faced, and caution with firmness is necessary, and veils if stings are dreaded. When manipulating I seldom either use a veil or smoke, carbolic acid being so much superior to the latter that it enables me to manipulate with safety, leaving the bees in a passive state after. The hive also is the better able to resist foul brood, while moths do not harbour where it has been used, neither is the honey tainted nor the larvæ affected by its use, as is the case when smoke is used. Carbolic acid is useful to prevent robbers attacking another hive. The attacking hive is well smeared at the entrance; this diverts the bees from making further inroads on its weaker neighbours. When commencing to manipulate, if the bees are vicious or suspected to be so, I smear the alighting board with some acid, then uncover the hive. I then smear the tops of the frames with the acid, and having a wing or feather also saturated so that I may dislodge the bees from any part by its use, placing it near the bees, causing them to retreat to or from any part I may choose. When this is done the bees remain quiet, and do not crowd over the frames nor attempt to sting as they do when smoke is used.

My hives have an advantage over other frame hives which renders them much more easily manipulated, while the hive is not exposed to draught and robbers, nor is the operator so liable to be stung. This advantage consists in having the tops of the frames fitted with lateral slides, so that there is no need to expose more combs than the one operated upon. These slides have the same value as in the Stewarton. By their use the hive can be insensibly ventilated. Draught is entirely obviated through brood nest when supers are on, and dispenses with excluder zinc, while they insure at all times supers free from brood. When using carbolic acid it is necessary to be very cautious, because if it touches the bees it kills them. As carbolic acid is of great service in the apiary in many ways a supply should always be kept on hand. Creosote has been long known for the same purpose, but the usefulness of carbolic acid in the apiary was first made known in these pages by that distinguished apiarian "R. S.," whose communications were much admired long ago by all interested.

REMEDIES FOR STINGS.

There are many applications and nostrums recommended for stings none of them being effectual as a cure, for the very simple reason that the poison has impregnated the system before the alkali can be applied and reach the acid to neutralise it. There is a lotion sold as a cure for stings, but unfortunately it is alum and water only, with a little scent added. Alum never will neutralise the poison of the sting of the bee. Some people are so little affected by stings that when they apply anything they imagine it to be a cure, then publish the same, thereby misleading others. I have had some very serious cases of stinging. The best remedy I ever found was to apply heat by steam or water to the patient to cause a free perspiration, and to give a little sal volatile; but this latter ought to be prescribed by the medical man. Not a moment should be lost to bring on a free perspiration, and every means resorted to that will accomplish that end.

EXHAUSTING QUEENS.

This very unfavourable weather, which has lasted since the beginning of April, has not only retarded the advance of hives but exhausts the queen, and will materially affect the prosperity of the hive. It is a fact that when once a queen is in condition for laying she deposits her eggs in the same ratio in bad weather as she would do in fair weather; but while they would be hatched and nursed in the latter case, they would undoubtedly be destroyed in the former; thus not only is the queen impaired, but the hive never attains the strength it would otherwise do. When hives are well supplied in the autumn with honey and pollen stores there is less fear of them suffering through the above, as they advance steadily with the season, but it is very different with those stimulated to unseasonable activity. With such hives, where there is so

much waste of eggs, the queens soon become (comparatively speaking) old, and should not be depended on for more than one season.

BEES NEAR-SIGHTED.

Some people are of the opinion that bees are not near-sighted—i.e. cannot discern an object near them. I cannot endorse that statement, as I have repeatedly observed when bees were feeding under a glass cover they started when an object was made to pass over or close to them.—A LANARKSHIRE BEE-KEEPER.

SYRIAN BEES v. BLACKS.

IN reference to the letter of "K. B. K." on page 293 it seems necessary to compare a few sentences, so that each reader may judge for himself as to whether some passages have not been read in the opposite to their natural meaning. Your correspondent says, on page 373, that I stated "£20 of profit had been obtained in one year from one stock of Syrians, while blacks did not gather enough to winter on." To this he says he remarked that the £20 quoted "could not be the one he knew of, as that was made in the year 1881, when all stocks did well." Now, compare what I did say on page 253. "I can cite a case where £20 profit has been made in one season in this country from one stock (hybrids); another where the increase was seven, and each gathered sufficient to winter on, while twenty black stocks failed to swarm and had to be fed for winter."

Next "K. B. K." on page 293, after asking for particulars of the £20 profit, says, "I have some recollections of a statement of the sort in print, but as I believe the bulk of the profit was derived from the sale of swarms or queens, and was, if I remember rightly, in 1881, when all stocks—black or yellow—gathered enough to winter upon." He presumes I refer to some other colony. This, however, is nothing to compare with his misleading quotation from the "British Bee Journal" on page 63, vol. ix. (not page 64, as he says) about small nuclei, swarms, and casts producing treble their value in honey, for in the concluding part of that article these words occur, "Notwithstanding the glorious weather here (Southall, Middlesex) in Scotland and Ireland there is not the same ground for satisfaction, reports of rain in Ireland almost daily and coldness being rife." This sentence is partly on pages 63 and 64, and concludes in fifty more words, so he must have seen and read it, and explains his giving 64 as the page.

Again, it will be noted, I did not say or imply that blacks standing in the neighbourhood of the stock which made £20 profit failed to swarm or secure stores for winter, but in connection with the one which increased seven, which was at Ulverston in North Lancashire, on the north of Morecombe Bay, between Scotland and Ireland. There is no excuse for him getting wrong, as I gave on page 353, in answer to "A. Tyke," the place where part of the account could be found, which is the very number that the £20 profit is published in, and in which the writer says, "The Syrian queen I had from you threw off five swarms in June, and the first swarm threw a virgin on the 18th of July, and a second on the 30th. . . . We had rain almost every day in June, July, and first three weeks in August. . . . It certainly has been the worst year for honey on record. . . . I have boiled eighteen stones of sugar this autumn to keep them alive over the winter. I had a few sections filled in May, otherwise there would have been none." In face of this and the well-known fact that in the north of England, Scotland, and Ireland 1881 was one of the worst honey years known, he tries to make it out to be the best, and that all stocks, black or yellow, strong or weak, did well throughout the United Kingdom just because they happened to do so in the south, and puts this forth to show the value of what I write, and concludes with the remark that "comment is needless."

If I have written anything to offend Mr. Doolittle I am prepared to answer him. I understand somewhat the subjects I write on, and take means to keep myself well informed, which was the reason I had a file of the "American Bee Journal" to refer to and verify "K. B. K.'s" quotations, which perhaps he did not expect. The word "Jarna" on page 352 should have been printed "Java."—HALLAMSHIRE.

TRADE CATALOGUES RECEIVED.

Edmund Phillip Dixon, 57, Queen Street, Hull.—*Catalogue of New and Choice Plants.*

W. & J. Birkenhead, Fern Nursery, Sale, near Manchester.—*Catalogue of Ferns (illustrated).*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We

request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Painting Hot-water Pipes (*Mrs. M., Kilkenny*).—Neither black varnish nor ordinary black paint is safe for applying to hot-water pipes in green-houses. A mixture of lamp black and linseed oil, however, will answer your purpose, and you may apply it at once.

Old Show Polyanthus (*R. C.*).—We are not able to answer your question. We presume the varieties you require are not very plentiful, or they would be procurable through florists. You mention Mr. Cannell. Have you written to him on the subject? There are many plants in nurseries that are not enumerated in catalogues.

Cropping Vine (*A Young Head Gardener*).—You appear to have acted wisely so far, but you may easily err by overcropping. It is impossible for anyone to say how many bunches your Vine may safely carry without knowing its condition. If it is growing freely and roots are plentiful near the surface of the border it ought to mature the crop to which you refer with the aid of manurial mulchings over the roots and the judicious use of liquid manure.

Flowers by Post (*J. P., Dublin*).—They should be placed in small wood or tin boxes with sufficient slightly damp and very clean moss to render them immovable. Damp cotton wool is also suitable, but very few flowers that are surrounded with dry wool reach us in a fresh state. A soft green leaf of any kind, such as Spinach, is much better for placing round the flowers than dry paper. There is sufficient moisture in the leaf without damping it when packing.

Special Societies (*Amateur*).—We have received a number of letters besides yours that have not been published, and for the same reason—that although the writers of them may not have intended to provoke replies of a personal nature, yet the communications would have had that effect. We have letters pertaining to the subject of "What is an amateur?" that will be published in due time.

Dahlias not Growing (*F. J.*).—By all means wait patiently, and especially as fresh roots are forming freely, as the probability is that there are latent buds that will be forced into growth. Occasionally, however, the buds are destroyed either by having been kept too wet or too dry, and then no growth follows, even if roots form freely; yet this is exceptional, and you had better, as you say, "give them time."

German Moss Litter (*H. S.*).—It has been advertised in the Journal by Gerhard Helmucke, 88, Bishopsgate Street Within, London, E.C., from whom you could doubtless obtain all the information you need. This material is very largely employed in horse stables, and afterwards as manure. It has been found good for making Mushroom beds, and also, as you will find from a letter in our present issue, is a good medium for Orchids in its natural state, and before being used in stables.

Designs for Carpet Beds (*Cambridge*).—We doubt if any better designs can be drawn than those that have appeared from time to time in our columns. There are examples suited for various shapes and sizes of beds, and they can be easily modified to suit individual requirements and to accommodate the particular plants that it is desired to employ. If you state the size and form of your bed, and the plants at your disposal, we can perhaps assist you in their effective arrangement.

Anemones Luxuriant (*A. Fitch*).—Your plants are attacked by a fungus, *Æcidium quadridum*, which is peculiar to garden Anemones. Attacks of parasites often induce a sort of spurious luxuriance. As little is generally known about the nature of this fungus a small engraving will be prepared and a description given. The fungus is a very curious one. It is a close ally of the old so-called corn mildew fungus of Barberry bushes. Destroy the affected plants.

Fruit not Setting (*W.*).—Pears and Plums in orchard houses require a very free circulation of air during the blossoming period, and an atmosphere sufficiently dry for liberating the pollen; it is well also to aid its dispersion by shaking the trees slightly when the blossoms are expanded. We suspect your house has been kept rather too close for these fruits, and possibly the trees grow too luxuriantly. The flower you have sent is of *Maguolia purpurea*.

Lilium longiflorum Harrisii (*S. L. B.*).—Do not repot the plants now, but encourage the growth as much as possible, either by a top-dressing of well-decayed manure or liberal supplies of weak liquid manure. Endeavour to insure a thorough maturation of the growth, and do not cut away the old stem until it is showing signs of decay. The better the growth the stronger will the bulbs be, and the more likely will they be to flower.

Sowing Hawthorn and Larch Seed (*A. B.*).—The practice in regard to the former is to gather the haws in the autumn and bury them in the ground for about eighteen months, and then sow them—that is to say, those gathered in October or November, 1884, would not be sown until February or March, 1886. Larch seed requires no such preparation. Your seedsman will procure some for you, and you may sow it in early spring.

Seedling Pansies (*Atherstone*).—Though the blooms before us are effective and the varieties are worth growing for decorative purposes, they are not equal to those named and sold by florists who devote special attention to these flowers. The best flower you have sent is a reddish maroon self, but as the blooms are not numbered we cannot refer to them individually.

Insects on Apricot Leaves (*A Constant Reader, Hereford*).—The disfiguring blisters are produced by the larva or caterpillar of a small moth, one

in the *Tinea* group, and apparently the species named *Coleophora hemerobiella*, which, though most frequent on Pear or Plum, also visits other fruit trees. As these larvæ live in little abodes of their own construction cut from the leaves, keeping all the body concealed if alarmed, they do not well admit of being dealt with by syringing, though some would be washed off the leaves. Professor Westwood states he knows no better method of dealing with the insect than careful hand-picking, and in the autumn all the dead leaves should be removed and burnt, since these would be sure to have attached to them some of the pupa of the insects. But we do not think, except in very rare cases this species does more than disfigure, it is not likely to affect the vitality of the Apricot.

Lawn Tennis Ground (*A. K., Blackheath*).—In reply to the question of a correspondent Mr. R. Inglis wrote as follows some time ago in the Journal:—"The regulation size of tennis courts is 78 feet by 36 feet. Outside this there should be at least a yard all round, but better if it is two—namely, 85 feet by 42 feet of level lawn. Tennis lawns are generally made quite level, which I think is a mistake, especially if the soil is of a stiff moist nature. It is much better if the ground is kept a little higher in the centre, say 4 or 5 inches, so that when a heavy rain occurs much of it passes off to the sides and ends, and the ground is quicker dry and fit to play upon sooner than when made perfectly level, and the greater part of the rain having sunk into the ground. It is very essential to have a firm surface; and for this reason, where the soil is clay or is wet, it is a good plan, after having levelled and consolidated the ground, to spread about an inch of clean coal ashes over it before laying down the turf. In addition to this it should be previously well drained. On light dry soils less trouble is necessary to have a fair tennis lawn; indeed, it may be played for 'home practice' on any lawn where there is a little less room than is required for full-sized courts, and although it is not quite level."

Heating Vinery (*H. S.*).—A flow-and-return 4-inch pipe will be quite sufficient to heat the house, having them on the lower side of the house, but preferably along both sides, the flow on one side and the return on the other, which will give you a more equal diffusion of the heat; but as this will cause the pipes to be taken all round the house it may be inconvenient in your case, as the doors are probably at one or both ends, and it is important that the pipes be kept clear of the soil, or their heating power will be considerably reduced. We do not think the Polmaise system of heating at all equal to heating by hot water with, for a small house, an ordinary saddle boiler.

Muscat of Alexandria Grapes Shank (*W. L.*).—The chief cause of shanking is defective root-action, the roots being deep or in a border of close material imperfectly drained. As the Vines crop well they may have been simply overweighted. There may not be anything wrong with the border as regards material and drainage, but unless satisfied on that score we should make an examination of the roots in the autumn, or as soon as the crop is cleared, and if anything be found wrong rectify it without delay. As regards the present crop, we should allow the laterals to extend as far as space admits without crowding the principal foliage, so as to deprive it of light and air. This will encourage root-action, which should be induced near the surface by watering with tepid liquid manure and mulching the surface of the border with good partially decayed manure. A good soaking of water when the Grapes commence ripening will mostly be sufficient to carry the Vines through until the crop is finished off; but if there be any deficiency of moisture in the border, in ten days or a fortnight afterwards give another soaking, always employing tepid water, and if done early in the day time will be allowed for the passing-off of superfluous moisture before nightfall. See that the crop is not too heavy, as shanking frequently results from that cause alone, and sometimes from a deficiency of lime in the border, especially in those rich in humus or deficient in calcareous matter. A bushel of quick-lime per rod of border spread on the surface and pointed lightly in will in most cases of this kind prove highly beneficial. The best time to apply the lime is a little prior to starting the Vines. Bone bust is also useful as a surface dressing, and may be applied now, but preferably at the winter surface dressing.

Packing Strawberries to Send by Rail (*Idem*).—We submitted your inquiries on packing fruit and flowers to a very experienced gardener, who replies as follows:—"Shallow deal boxes about 1½ inch deep are most suitable, so as to hold a single layer of fruit, and they may be of any size in other respects as the quantity to be sent may determine. Ours for sending from the country to the family in London daily are of half-inch deal, 12 inches long and 11 inches wide, and any number travel safely placed one upon the other and securely tied together with string. We pad the bottom of the box with a layer of Vine or Spinach leaves, gathered a short time so as to become limp, and then place the Strawberries in the box with the stalk downwards, enclosing each fruit in a Strawberry leaf, and placing rather tightly so as to prevent moving about, and keeping the fruit sufficiently low so as to prevent crushing by the lid, which is placed down on a layer of leaves as at the bottom."

Packing Cut Flowers (*Idem*).—"We use deal boxes for these, about 18 inches long, 15 inches wide, and 3 or 4 inches deep. A little damp moss is placed at the bottom, the moss being washed clean and all the water squeezed out. The sides of the box are then lined with clean white paper, and the flowers are put in in layers, the heaviest at the bottom as well as the heavier fronds of Ferns, and the lighter flowers at top, with *Adiantum* spread all over the flowers. A very light sprinkling of water is given—just a few dashes of the fingers after being dipped in water, then covering with a double thickness of tissue paper before putting on the lid. Any number of boxes can be tied together, and with the address label on the upper side they travel safely. The flowers should be packed rather tightly, but not squeezed down and crushed, as is often the case, and should be gathered in the early part of the day, as they are then much fresher and fuller of moisture than when the day is advanced. For sending by post we use tin boxes, lining with cotton wadding and wrapping the flowers in tissue paper, so as to keep them from the wool, for when the flowers are in contact with it the moisture is rapidly absorbed from the flowers. They should be packed so that they cannot move about, or they will be so damaged as to be useless."

Grapes Scalded (*J. W. H.*).—The Grapes you have sent are what is known as scalded, and the Vines, according to your description of them, are

scored. You have stated quite sufficient to account for their unsatisfactory condition. The pipes to which you applied sulphur have probably been hotter than you represent, although you were not there to test them. It has frequently been advised in this Journal that sulphur when needed to check the increase of red spider should be first applied to the return pipes, as being cooler, and hence safer, than painting the flows; yet you have painted the "upper side" of what we presume are the flow pipes. If the pipes were not hotter than you state the temperature has been too high by sun heat before air was admitted. Then the "strong stable manure" has in all probability contributed to the evil of injured foliage and fruit. An excess of ammonia in the atmosphere when the growths of the Vines are young and tender is decidedly injurious, and the danger is aggravated by keeping the house too close, as we feel confident you have done both by night and by day. Under the circumstances when you found the manure so strong you ought certainly to have left the top ventilators of the house open all night, and admitted more air very early in the morning; and further, if the days were bright, shading should have been resorted to when you found the air impregnated with sulphur and ammonia. Over and over again has the necessity for such precautions against injury been pointed out, still their full importance do not appear to be appreciated by all readers until they find by experience that they cannot be safely ignored. You can only act in accordance with the advice suggested of night ventilation as a safety valve, and very early admissions of air in the morning, and if this system fails then have recourse to light shading, regarding it as the lesser of two evils, the greater being injured Vines.

Various (Aurora).—The white flower you have sent is *Iberis coriacea*, one of the best of the perennial Candytuft, and most attractive in gardens during the spring and early summer months. Young shoots just getting a little firm, but by no means hard, inserted in firm and very sandy soil under a Landlight, keeping them moist and shaded to prevent flagging, strike freely. Growth a little softer, as just cutting crisply, inserted in a pot, and covered with a bellglass, strike more quickly in a warm frame, where, however, they must not remain a day after they have rooted and are starting into growth. The yellow flower is *Cheiranthus Marshalli*, and may be propagated in exactly the same way. Cuttings rooted under handlights perhaps make the most sturdy plants, but everything depends on the skill of the propagator. As the Rhubarb is newly planted by all means water it regularly in dry weather, and it will probably commence growing freely as the season advances. The stalks should be pulled when wanted. Possibly your Rhubarb has been "cut" too closely. No stalks should be used until the plants are strong, and the more leaves you allow to develop and mature the stronger will be the crowns and the more abundant the produce.

Vines Withering (Constant Subscriber).—So many examples of injured Vine leaves are sent to us that it is impossible for us to remember the exact nature of every case after it has been attended to. It appears we stated that the leaves you sent were scorched. In reply you say you "know to the contrary." There is thus a conflict of opinion, and the question arises not only as to whether your experience is greater than ours or not, but whether you or ourselves have the better facilities for forming a correct opinion. If you had subjected the leaves you sent us to close examination under a powerful microscope, you would have had plainly revealed to you their real condition, and we venture to say it would not have been "quite the contrary" of what we stated. The small portion of lateral you have now sent has no scorched leaves, nor is the specimen at all sufficient to enable us to account for the withering of the shoot, while your letter contains no information to guide us to any conclusion on the subject. You say nothing about soil, temperature, watering, or atmospheric moisture—in fact you do not give the slightest hint regarding the treatment to which the Vines have been subjected. We do not give answers by guesswork, but found our replies on the evidence that is either supplied or is apparent in each case. You allude to the shoots being "poisoned," and that cutting out the affected parts and applying lime is the antidote. We are glad the malady is under your control, and you cannot do better than apply the remedy you find efficacious. The nature of the "poison" we have absolutely no means of determining; it may be a form of gangrene arising from too much nitrogenous matter in the soil, or from some error in ventilation, or an excess of root or atmospheric moisture. We are very willing to aid you if you will supply us with more data for doing so than your hurriedly written letter affords.

Mildew on Vines (J. O., Monmouth).—We regret your Vines are seriously infested with mildew, not only the bunches but the leaves with their foot-stalks being infested. However, you have checked the parasite on the foliage, and in many places destroyed it by the syringing with Gishurst compound, but it is increasing rapidly on the berries. Mix some sulphur with the water, and give another good syringing, and if it does not adhere to the berries dust the bunches well with sulphur. It is often difficult to prevent the attacks of mildew in houses so crowded with plants as yours are. You cannot do better than maintain your present temperatures, and keep the atmosphere of the house drier if possible, never closing the top ventilators, and at the same time admitting more air very early or immediately the sun reaches the house, and do not close early in the afternoon with much moisture in the usual manner. A moist and close atmosphere favours the growth of the parasite, one dry and buoyant checking its increase; yet sharp currents of air must be avoided, as you have evidence of their effects in the mildew being worst near the door of the house. Painting the return hot-water pipes with sulphur would have a tendency to check the increase of the destructive pest.

Cucumbers and Melons Withering (W. B. B.).—The plants either do not receive sufficient support or the atmosphere of the house is too dry, the latter being perhaps the most probable cause of the unsatisfactory condition of the plants. Apply water copiously to the roots—that is, pour it into the soil so long as it passes away freely, and if the roots are plentiful give soot water twice a week. Also surface the bed with rough rich soil as often as fibres are seen protruding through it; syringe the plants freely, yet carefully, twice a day; have troughs on the pipes filled with water, damp the paths, walls, and bed frequently, admit air by the top ventilators only, and your plants will be bound to grow. When we say open the top lights only, it is of course on the assumption that by opening them early and increasing the

ventilation in advance of the desired temperature that a maximum of 85° will not be exceeded. Opening the front ventilators of Melon and Cucumber houses needlessly is very common, and results in the drying of the air and causing so much moisture to evaporate from the leaves that they collapse. We think if you work on the lines indicated your plants will improve, unless, indeed, they are exhausted beyond recovery.

Tomatoes Destroyed (D. B.).—Judging from the description given, your friend's several losses of Tomato plants have been caused by wireworms. If you had forwarded part of a damaged stem with insect enclosed it would have simplified our answer. A rather large specimen of wireworm we have before us measures about 1 inch in length, is one-quarter of an inch in circumference, of a rich yellow colour, and has three pairs of legs disposed near the head. They are wonderfully destructive and very difficult of eradication. Your advice to clear out all the old soil and restart with fresh was the best that could be given under the circumstances, especially seeing how little soil Tomatoes really require. A small square ridge of soil, about 18 inches wide, and the same or less in depth, enclosed with either a loose brick wall or turves, is ample to start with, occasional top-dressings being given as the plants gain in strength and are bearing freely. As your friend objects to remove the old soil, his best plan will be to carefully turn the heap, picking out all the wireworms that can be seen. In order also to encourage rapid growth of the Tomatoes, and in this manner escape entire destruction, it is advisable to mix some kind of artificial manure or guano with the compost at the rate recommended by the vendors. Failing this a sprinkling of soot and common salt would prove similarly beneficial. As the wireworms collect near the underground portion of the stems, these should not be buried deeply, in order that they may be frequently bared and the wireworms discovered and destroyed. Petroleum at the rate of 2 ozs. to a gallon of hot water, and kept well stirred with a syringe to prevent its collecting on the surface, if syringed when cool enough on to the lower portion of the stems and allowed to run down to the roots, will act as a deterrent, without, however, actually destroying the wireworms or injuring the roots. Pieces of Potatoes or Carrots attached to stakes and plunged into the soil will entrap some of them, and should be occasionally drawn out and examined. Soil that is known to contain grubs should be scorched before using; this increases its fertility and destroys all pests.

Names of Plants (J. H., Sussex).—The Banksian Rose, *Rosa Banksiae*; (*Constant Reader*).—1, *Kerria japonica flore-pleno*; 2, *Stachys lanata*; 3, *Staphylea colchica*; 4, *Muscari moschatum*. (*Subscriber*).—1, a variety of *Ixia*, but it was too much withered to be recognisable; 2, *Spiraea prunifolia*; 3, *Cephalotaxus drupacea*; 4, *C. Fortunei*; the green flower is *Ixia viridiflora*, the other is *Ixia cæteroides*. (*A. D. H. C.*).—1, insufficient for determination; 2, *Acorus Calamus*; 3, *Rhododendron cinnabarinum*. (*W. M.*).—*Carex pendula*. (*H., Constant Reader*).—2, *Saxifraga granulata flore-pleno*; 4, *Lastrea Filix-mas cristata*; 5, *Adiantum pedatum*; the others were insufficient.

COVENT GARDEN MARKET.—MAY 21ST.

OUR market still heavily supplied, with business exceedingly quiet. Prices bearing downwards, Cucumbers alone maintaining former values.

FRUIT.

		s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6	to 5 0	Oranges	100	6 0 to 10 0
Chestnuts	bushel	0 0	0 0	Peaches	per doz.	6 0 12 0
Figs	dozen	4 0	6 0	Pears, kitchen ..	dozen	1 0 1 6
Filberts	lb.	0 0	0 0	„ dessert ..	dozen	1 0 5 0
Cobs	per lb.	1 3	1 6	Pine Apples English ..	lb.	2 0 3 0
Grapes	lb.	2 0	5 0	Strawberries ..	lb.	2 0 6 0
Lemon	case	15 0	21 0	St. Michael Pines ..	each	2 0 6 0

VEGETABLES

		s. d.	s. d.		s. d.	s. d.
Artichokes ..	dozen	2 0	to 4 0	Mushrooms ..	punnet	0 9 to 1 6
Beans, Kidney ..	lb.	1 0	0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0	2 0	Onions	bushel	2 6 3 0
Broccoli	bundle	0 9	1 0	Parsley	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0	0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6	1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6	2 0	„ Kidney ..	cwt.	4 0 5 0
Carrots	bunch	0 3	0 4	„ New	lb.	0 2 0 4
Cauliflowers ..	dozen	2 0	3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6	2 0	Salsafy	bundle	1 0 0 6
Coleworts	doz. bunches	2 0	4 0	Scorzoneria ..	bundle	1 6 0 6
Cucumbers	each	0 3	0 6	Shallots	lb.	0 3 0 6
Endive	dozen	1 0	2 0	Spinach	bushel	2 6 3 6
Herbs	bunch	0 2	0 0	Tomatoes	lb.	1 6 0 0
Leeks	bunch	0 3	0 4	Turnips	bunch	0 3 0 0
Lettuce	dozen	1 0	1 6	„ New	bunch	1 0 0 0



THE SHROPSHIRE BREED OF SHEEP.

(Continued from page 396.)

An important period in the history of the Shropshire breed must now be referred to, and for a time the higher-bred and shorter-woolled stock seem to have carried everything before them for a considerable number of years, but more particularly the sheep bred at Latimer, the property of the late Lord Chesham. At the Bedford

Royal Agricultural Society of England's meeting in 1874 Lord Chesham took the first prize in the large class of ninety-six shearling rams. In the aged ram class, with twenty entries, he took the third prize; but in the class for shearling ewes his lordship's entry took the first prize in a class wherein one hundred sheep were shown. This was an important victory, and proved a true presage of great renown for the Latimer flock. We will make a quotation from the Judges' report on that occasion:—"As compared with previous exhibitions, which we have observed for fifteen years, we consider the classes contrast favourably, especially taking into consideration the number of the general entries. As a whole we find the sheep possess more uniformity of character, have not diminished in size, and still maintain the muscular proportions and consumable material which are themselves the natural properties of the Shropshires; though we wish to remark that there were specimens exhibited to whose character we take exception, and whose breeders we advise to exercise a strict attention to type and colour." Here we wish to remark that a spirited exhibitor, Mr. T. J. Mansell, took the second prize only in the shearling ram class; but in the aged ram class he took the first prize, in which class Lord Chesham took only third prize, thus showing that Mr. Mansell was such an enterprising exhibitor that we may naturally expect that he possessed a type and style of sheep destined to make a great advance in the Judges' estimation and favour at a future time, when early maturity and

as it is termed. Out of this discussion, too, came the conclusion that dark points of uniform colour, with the largest possible size of frame, were the correct objects to arrive at. The more experienced and consistent breeders came to this conclusion among themselves about the time of the "Royal" Battersea Show in 1862, and most admirably have they carried it out by their skill in the art of selection.

As an illustration of the best style of Shropshire sheep above referred to, we give a portrait from the *Agricultural Gazette* of August 29th, 1881, of Mr. Mansell's first-prize Shropshire ram, Dudmaston Hero. The portrait is a very successful sketch by Mr. A. M. Williams from a photograph taken at Derby by the Animal Photograph Company of Mr. W. Mansell's ram, aged two years and four months, sold to Mr. R. Loder, M.P., at Mr. Mansell's sale for 200 guineas.

The last quotation, together with our previous quotations from the Judges' reports, shows that a contest of the greatest importance had been going on as between the character of sheep bred by Lord Chesham and those bred by Mr. Mansell. It is, therefore, interesting to see the result of this contest as exemplified by the report of the Senior Steward at the "Royal" Meeting of York in 1883, and also the Judges' report on the classes of Shropshire sheep. The first report states:—"The judging of the ninety odd entries of Shropshire rams, for instance, was a severe task for the Judges, but the gentlemen in office bestowed great care and no little time on their duties. The two-shear class was not so large nor so difficult to judge. Here

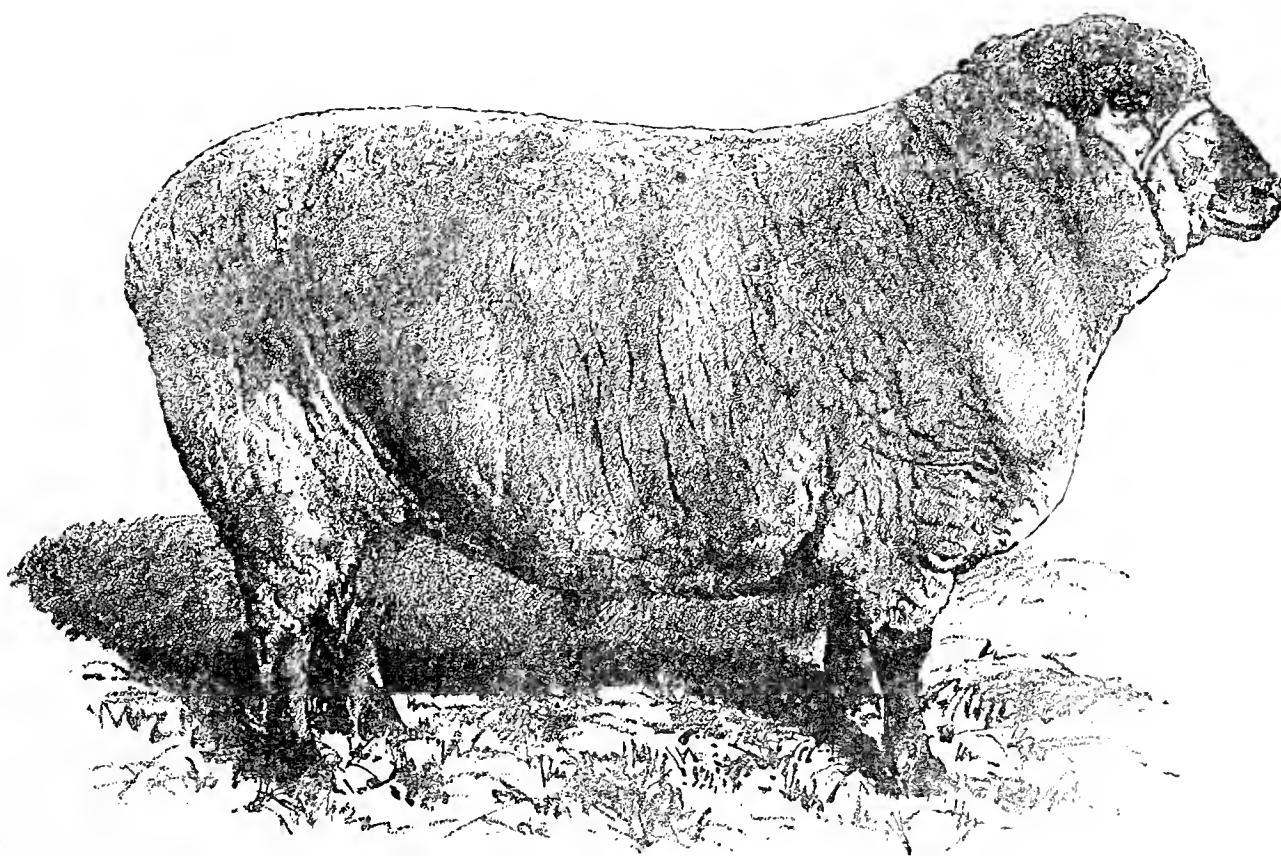


Fig. 95.

weight for age was likely to be the leading object of breeders of this breed of sheep.

From the period of 1874 up to 1881 the Shropshires continued to show some diversity of type and character; but the general success of the Latimer flock, which in the hands of Lord Chesham's shepherds and agents assumed almost a pure Down style during the whole of this time, and generally taking a large portion of the leading prizes. But some competitors had different objects in view, and a want of uniformity was still conspicuous, and we glean from a statement in the *Agricultural Gazette* for August 29th, 1881, as follows:—"Judges at shows of course also differed in opinion. One or two out of the three were in favour of the South Down colour and type, while the next year two were in favour of dark colour and more size, notwithstanding the legs of the sheep were a little longer, and that the latter required more cake and corn to mature them early, or more time to get them fat in the ordinary way. The advocates of the latter argued that there were several breeds of small sheep, some of which were deficient in flesh as compared with the fat they produced. Upon this they said, "We have in the Shropshires large frames and ample lean of a dark rich colour. The smaller Down-like frames must be discarded, and the larger sizes cultivated." The results, as seen at the present time, have clearly proved that the latter advocates were right. This conflict of opinions and diversity of taste led to warm discussions. It was shown that in more than one instance pure South Downs had been introduced into flocks of the established Shropshire stock. In each instance the flock "went all to pieces,"

Mr. Thos. J. Mansell brought further honour to the Dudmaston flock, his beautiful and rarely covered little sheep, which was first in a monster shearling class at Reading in 1882, and whose letting price last season was 165 guineas, came out to try his fortune again in company with a more lengthy sheep from the same flock, but bred by Mr. C. Wadlow, Bridgenorth. The pair were invincible. The Judges gave the preference to the greater size and gaiety displayed by the Bridgnorth sheep. Ten of the ninety-two pens for shearling rams were empty, but there was ample material left to perplex the Judges. Lord Chesham's pair, bred in the old Latimer flock, accomplished a wonderful performance, having taken both first and second prizes. The first was as ripe almost as a pear; on the back he handles charmingly, his rump was neat and well covered, his head attractive, bone fine, and character perfection. Since then he has been purchased by that good all-round judge, Mr. Randell, at 100 guineas. The sire of the first shearling was Dudmaston, a celebrated sheep of Mr. Mansell's breeding. The second, whose sire was also Dudmaston, is bigger than the first, but he is not quite so plump and full of quality. Several other sheep noticed in the same large class were sired by a Dudmaston sheep. Shearling ewes are reported if not so large an entry as shearling tups, were nevertheless very fine and nearly uniform in type and quality. Lord Chesham's Reserve gimmers were very sweet, and ten good pens were commended."

The Judges' report says, shearling ram class:—"It gives us great pleasure to bear our testimony to the excellence of this grand class

of sheep, represented by eighty-seven entries. The first and second-prize animals show beautiful form, and have well-covered frames. We felt it our duty to highly commend and commend no less than sixteen entries."

These quotations were not only necessary to prove the advance of this breed, but also the direction in which the advance had taken, and it will be seen that Lord Chesham is still the foremost prize-winner in the ram classes, but that to enable him to do this he has engrafted or sired on the old Latimer high-bred stock with sheep from Mr. Mansell, owner of the Dudmaston Hero. This shows in the most singular manner the discrimination and sound judgment of Lord Chesham in having improved his old breed to meet the new views entertained by the judges and practical farmers on the point of increased weight for age, and this is most certainly the tenant farmers' view of the requisite in rent-paying sheep. In this matter, however, the consumer's view is rather lost sight of, for there can be no question the nearer approach these sheep make to the South Down character that the better quality they yield as mutton, because the lean meat not only prevails and is better mixed or marbled, but that the joints are more moderate and selling in size, whereas the stock showing more of the long-woolled style and growth make heavier weights for age and prove more valuable, although coarser in flesh, as food for the million.

Whilst keeping in view the interest of the home farmer and tenant farmer we have yet to notice a matter of the highest importance, and which has been the subject uppermost in the minds of practical rent-paying farmers for some years past—viz., the tendency to twin in certain breeds of sheep. Certainly it is most desirable not to lose sight of the per-centage of lambs reared from different breeds of sheep, for although it has been generally acknowledged that the horned Dorset and Somerset breeds produce more lambs than any other stock to be found in the southern and south-western counties of England, yet it is of equal consequence to the flock-masters of the midlands also to possess a breed which will yield the largest number of twin lambs. A correspondent of the *Agricultural Gazette* on November 12th, 1883, says:—"Allow me to inform you that after thirty-five years' experience in the breeding and management of several breeds of sheep—South, Hampshire, Oxford Downs, also Lincoln and Cotswold crossed with Leicester, I have come to the conclusion that the improved Shropshire is the most prolific and rent-paying animal for general purposes to be found in this country at the present time. They are adapted for both high and low, heavy or light soils, will do well on grass or plough, and stand more hardships than any other class of sheep bred in England." As an illustration of the per-centage of lambs obtained from Shropshires, we take the returns from nine different breeders that 1075 ewes produced on the average nearly 122 per cent. of lambs.

WORK ON THE HOME FARM.

Horse Labour.—Horses are still actively engaged in preparing the land for the seed of root crops. This preparation on the arable farms connected with dairy farming may well assume a revolutionary form, for the points to which we referred last week—that is, the wider drilling of both Mangolds, Swedes, or other root crops to be removed for feeding at the homestead or even on pasture land, will commend itself to a host of practical farmers. Many will see at a glance not only the great importance of growing roots wider apart for facilitating the interculture, but also the benefit to be derived from growing a crop of common Turnips between the main crop of roots to be removed; and it must also be understood that the Turnips, which will consist chiefly of foliage, are valuable to be ploughed-in, together with the leaves of the root crop removed. At the same time the main root crop will be produced without extra manure will be a full acreable tonnage, because if the same quantity of manure per acre is applied by the drill as usual, yet being applied to fewer drills, the manure will be more powerful in effect, and result in either larger roots or more of them, thus maintaining the full weight of the crop, and undiminished by the growth of Turnips between the drills. The early-sown roots will receive the full benefit of the start and first seeding, whereas the Turnips will benefit by the assistance afforded by the application between the drills of 2½ cwt. of mixed nitrate of soda and bone superphosphate per acre sown by hand. Upon many farms it will be found very convenient to make use of the hand-drill used for small seeds in gardens, and particularly it is useful for the drilling of Carrots, as follows:—Make the ground very fine, and sow the manure—say, 2 cwt. or 3 cwt. of bone superphosphate and guano, mixed together, will make a full dressing of 4 cwt. or 6 cwt. per acre sown broadcast, and then throw two furrows together formed into stretches, which will deposit the seed nearly in the centre of the stretches, then drill the seed on the top directly over the manure. In this way we have grown not only full crops of Carrots, but also Swedes, Turnips, and Mangolds, and in this way the interculture is greatly facilitated at and during any age or size of the young plants.

Hand Labour.—Weeding by the women or old men must now be done except in corn where Charlock prevails, in which case Koldmoo's weed-eradicator, drawn by a horse, will prove very effective if used at the right time—that is, just as the weeds are blooming. Hoeing Beans and Peas should now be finished as soon as possible, especially where the

Peas are drilled close in the lines, or in case of Beans and Peas being drilled together in the lines. Cutting Clovers and grasses in mixture will now be going on, especially where Trefoil or Hop Clover and Rye grass is grown. But under the new system of seeding the red Clover or Cow Grass Clover, both of which will yield a successional growth in accordance with our requirements. As the coarse pasture grasses are now mixed with them in alternate husbandry, such as Cocksfoot, Timothy, and Foxtail, we recommend that the crop should be cut much earlier than usual, looking more than ever to the production of the most nutritious hay, as well as the successional growth; for it is now easy to grow three crops in succession if the first is cut on or about the 1st of June. The object of three cuttings is very important, but especially so on those farms where green manuring prevails, and where young cattle or dairy cows are kept, the latter being fed with Clover twice a day at the time of milking, the former to be kept under cover and feeding for "baby beef." In this way by feeding either steers or heifers good beef can be made with a fair allowance of cake—say 3 lbs. per day, and a fair allowance also of green Clover, cut and given daily. The cattle sold from their boxes, having never been off the straw, at from twenty to twenty-four months old, and the result, both in beef and manure, we have proved to be a profitable system, for neither ensilage or hay is necessary, as our cattle in the winter months never get hay, but straw only, with roots and cake and bean or barley meal. The advantage of three cuttings or growths is very important, for when cut young the Clover and grasses make the highest quality of hay or ensilage, or cut green for the summer feeding of cattle. The benefit in the case of green manuring is also extended, for the third growth will be much greater of the grasses named than of Clover and Rye grass, and will prove highly valuable if ploughed-in as a manure for the succeeding Wheat crop. This method of cutting the Clovers for the soiling of horses and cattle will pay well for the labour, for our plan has always been that one man with the odd horse or mule shall cut and carry to the stables, as well as cattle boxes, all the green fodder required; and we repudiate and ignore the usual custom for the teammen to cut and carry the green fodder required for their horses daily. We then find under our plan there is no necessity for horse labour being hindered at haying or harvest, or at ordinary times when a couple of hours extra of horse labour during the summer season on particular occasions is a matter of economy and of benefit not to be obtained under ordinary farm management of the teams.

Live Stock.—On the hill farms, in fact on any occupations where sheep stock are kept, the summer feeding is now entered upon, and several changes each day are advantageous, especially on those farms where breeding flocks are kept, for it is a good plan, where the ewes and lambs are fed on grass growing on the arable land, to change from grass to Vetches, both being hurdled off into folds for ewes and lambs. The lambs being trough-fed will quickly get fat, especially if a few Mangolds are cut by Gardner's cutter and mixed with cake or beanmeal, or both, and in this way the lambs will be maintained in first-rate condition either for sale as wether lambs or as fat sucking lambs for the butcher. It is merely a difference as between cake and beanmeal for the latter, and a moderate allowance of beanmeal only for the former, in either case it being mixed with roots cut small and served in the troughs twice a day. All the pastures for grazing bullocks for beef in the autumn may now be stocked, but the best plan for such a proceeding is to purchase the cattle in the autumn, and winter them in the yards and sheds, so that they may be in health and sleek condition on being turned out this month to graze until fit for the butcher. It must, however, be carefully considered as to whether the pastures are of sufficient power to feed the animals fit for the butcher from their produce alone, otherwise where they are at all doubtful some cake—say, 3 lbs. each daily, may be given in troughs, with Mangolds cut and mixed with the cake.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1884. May.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
Sunday	11	30.110	70.4	58.8	N.E.	51.8	79.2	46.3	116.6	41.2	—
Monday	12	30.013	64.4	56.2	N.E.	53.5	78.3	49.0	121.4	43.5	0.153
Tuesday	13	30.027	54.4	51.3	E.	54.7	69.0	50.1	97.5	48.3	—
Wednesday ..	14	29.813	57.0	49.9	S.E.	54.2	65.5	47.0	111.6	43.3	0.040
Thursday	15	30.128	52.7	48.3	S.W.	53.4	61.0	46.3	93.9	41.4	—
Friday	16	30.061	60.0	56.3	S.W.	53.4	71.3	51.1	115.3	52.4	—
Saturday	17	29.817	59.7	55.2	E.	54.0	75.9	51.4	117.3	50.4	0.042
		30.004	59.8	53.7		53.6	71.5	48.7	110.5	45.3	0.235

REMARKS.

- 11th.—Extremely fine, hot, and almost cloudless. Several white butterflies.
 12th.—Fine; distant thunder 4 P.M., thunderstorm 4.30 to 5 P.M., with 0.15 inch of rain in less than half an hour; fair afterwards, but lightning till 10 P.M.
 13th.—Fine throughout, but cooler.
 14th.—Breezy and dull in morning, shower at 2.30 P.M.; fine evening.
 15th.—Dull, windy, and cooler.
 16th.—Generally dull, but hot sun at intervals.
 17th.—Very fine throughout, and cloudless in evening.

A fine summer-like week; temperature about 6° above the average.—G. J. SYMONS.



COMING EVENTS

29	TH	Royal Society at 4.30 P.M.
30	F	Manchester Show (to June 6th).
31	S	
1	SUN	WHIT-SUNDAY.
2	M	Bath and West of England Society's Show at Maidstone.
3	TU	
4	W	

LIQUID AND ARTIFICIAL MANURES.

PLANT-FEEDING is practised in many gardens in a most careless manner, and cannot be too strongly condemned. Frequently liquid manure is poured into the pots of plants, or on to the beds of Melons and Cucumbers, long before they need any assistance, and instead of this benefiting the plants the soil is poisoned and failure incurred. It would indeed be difficult to point out any operation in the whole range of gardening that is carried on with such recklessness. I have for some years tried to have it performed on a judicious system; but with the most careful instructions, and every effort to insure that the orders given were properly executed, I have had plants ruined by carelessness in this respect. This led to the adoption of an entirely different method, which up to the present has answered well, and entails considerably less labour with scarcely any risk; and fortunately this plan is as simple as it is effectual.

I do not intend to detail the system of plant-feeding by liquid manure that has become so general, but proceed at once to the system of feeding on the surface by the aid of artificial manures. There are many of these prepared for plant food, and have proved to be of importance. Since the old system has been discarded I have had the most beneficial results. In the end the cost is very much less than when guano and other preparations have to be purchased for use in liquid form. Some of the liquids made from cow and sheep dung or the drainage of stables have an odour which is most objectionable. Artificial manures applied to the surface are clean and free from this disadvantage, besides effecting a wonderful saving in labour. Suppose 500 Chrysanthemums in 10-inch pots require feeding; a man will apply a fertiliser to the surface, which will be ample for at least a week, in the same time that he would prepare liquid manure sufficient for one application. This is a clear gain, and the good condition of the plants is insured because it can be seen at a glance that the required assistance has been given according to orders, and that instructions have been carried out, for the workman leaves his mark behind him.

I have largely practised this surface-feeding for plants of various descriptions; for Azaleas and Epacris no other system should be followed. The whole of our Gardenias are assisted in this way, with tree Mignonette, Primulas, and many others. These have all shown a marked improvement. Mignonette is rather impatient of strong supplies of liquid manure, but light applications to the surface have kept the roots in constant action, and fine spikes have been produced. Primulas flowered and continued longer under this system than formerly; while Roses, both in pots and planted out, have had no other assistance than upon the surface occasionally, and they have never grown with such luxuriance during the forcing season or produced more or better blooms. Adiantums and other Ferns thrive admirably under this system, growing most satisfactorily and producing deep green fronds.

Surface-feeding has not been entirely confined to plants, for French Beans in pots and planted out have had no other aid than one or two applications to the surface after feeding became necessary, and the result has been all that could have been desired. Cucumbers and Melons have also been treated on this principle, with marked benefit to the plants and crops.

The greatest effect has shown itself in the case of Strawberries, for all who have seen them have been struck by the rich deep colour and large size of the fruits, and above all their excellent flavour, the variety being Vicomtesse Hericart de Thury. Of this variety I have grown nearly 1000 plants annually, and had the plants finer, and to all appearance better ripened, but in size and quality the fruits were never equal to those gathered this year; the most remarkable fact of all being that the flavour was equally good when the fruits were gathered from the warm moist forcing house as from plants in cooler structures. The only difference in cultivation has been the surface-feeding. The plants were top-dressed with rich material when introduced to the forcing house with a little artificial manure mixed in the compost, and after the fruit was set two applications were given between that stage and the ripening of the crop, these proving sufficient.

On several occasions I have referred to Grapes grown in pots as well as Strawberries being invariably deficient in flavour if feeding was continued into the last stages of development. This is one reason I have in favour of placing Vines into larger pots than those in which they have been grown, so that they are not dependant upon the waterpot. It has been proved again and again that if Strawberries are fed until the fruit is ripe the flavour will be sadly deficient. This led me to the belief that artificial manures were capable of supplying Strawberries with food in a more substantial form, which would benefit them in their last stages and not endanger the flavour. Practice so far has confirmed that belief with the most satisfactory results, and this system of manuring will be continued.

There remains one more point in relation to feeding with artificial instead of liquid manures which is by no means an unimportant one. When stimulants are supplied from the waterpot seldom indeed do the roots come in numbers to the surface; on the contrary, the soil after a time has a sour appearance, and the roots have a tendency to grow downwards. When the surface soil is dressed with artificial manures it remains in a sweet condition, and the roots find their way there in large numbers. This activity of the roots on the surface is particularly noticeable in the plants and fruits which have been mentioned, and that is what good cultivators always like to see.

The method of sustaining and invigorating plants is now more largely practised in nurseries than formerly, because it is not only the safest but most economical system; also in those great establishments where plants are grown by the million for supplying the markets top-dressing with artificial manure is almost exclusively adopted, and it is questionable if better examples of culture can be seen anywhere than in the plants thus supported. It is quite astonishing to see how much can be got out of a small pot by a judicious system of top-dressing, and the same plan is being increasingly adopted in large fruit-growing establishments. This certainly would not be the case if it was not found advantageous, for it is incumbent with persons who are engaged in commercial horticulture to obtain the greatest possible return with the least possible outlay in material and labour; and hence it is that they adopt the plan that I have endeavoured to describe, and which I have not found wanting.

I shall not recommend any particular artificial manures. First, because I do not care to advise the use of particular articles sold by vendors in preference to those of others; and, secondly, because what might suit best here might not

suit in another garden with different treatment and dissimilar soil.—WM. BARDNEY.

OUTDOOR CULTIVATION OF THE STRAWBERRY.

THERE is no doubt that many Strawberry plantations are relied on annually for the crop, when it ought not to be counted on as profitable for more than two or three years. As the time will soon arrive when there will be abundance of runners, it will not be inopportune to give a few notes regarding the outdoor cultivation of the Strawberry. Many gardeners make their new Strawberry plantations in the autumn, others leave it until the spring; but we think a full crop ought to be procured the first season after planting. Therefore we will recommend the runners to be planted in their permanent quarters from the last week in July until the end of August. The sooner the runners are planted the stronger will be the plants, consequently there will be a larger crop of fruit. This system of Strawberry culture is well carried out by Mr. Douglas, Great Gearies, Ilford, and better results could not be obtained. Preparing the runners and preparing the ground for their reception ought to be attended to at about the same time, for as soon as the runners are well rooted they should be planted out.

PREPARING THE GROUND.—The ground should be well trenched to the depth of 30 inches, placing a good layer of decayed manure in the bottom of the trench, and another layer within a foot of the surface. If the subsoil is not in very good condition it must not be brought to the surface, but be kept underneath. It must be well worked up with some manure. After the ground has settled down it will be ready for the prepared runners.

PREPARING THE RUNNERS.—As soon as runners are obtainable they should be layered into 60-size pots, filled with a compost of four parts loam and one part decayed manure. The loam should be well divided and the manure sifted. If it is not convenient to use small pots, pieces of turf 4 inches square are good substitutes. Pinch the points off the runners before layering, as it will strengthen the remaining runners. Press the base of the runner on the surface of the soil or turf, and peg it in position. After being layered they must be kept well supplied with moisture. When well rooted sever them from the parent plants, stand them together in a sheltered place, and keep them well supplied with water. In a week they will be in good condition for planting out.

PLANTING OUT THE RUNNERS.—Two feet apart in the rows and the same between the rows is a good distance. To every plant give a good shovelful of soil, the same as was used for layering, only it may be in a slightly rougher state. Press the soil well round the roots, and form a shallow basin round them. Keep all runners removed as soon as they appear, and well water them every alternate night, or according to the weather. They will soon commence growing, when the Dutch hoe should be used frequently amongst them. As the season advances and the autumn rains come on discontinue watering.

AFTER-TREATMENT.—If the winter is likely to be severe mulch with some short dry manure. If it is likely to be an open winter do not mulch them, but use the Dutch hoe freely. After the fruit has set, and if it is dry weather, a good soaking of sewage or liquid manure should be given, afterwards well mulching them with long stable litter, which will soon become bleached and be a good protection for the fruit, otherwise clean straw can be used. It will well repay the cultivator if time can be spared to support the fruit with Birch branches. This is the best protection from slugs, and the fruit is kept clean.

SECOND YEAR'S TREATMENT.—After the fruit is gathered and all runners taken off that are required, remove the runners that are left with the old mulching. Well hoe and clean the plantation, and give a thorough dressing of well-decayed manure. This is all the treatment they will require beyond hand-weeding and cutting off any runners which may appear until the fruiting period arrives, when the protection of the fruit must be seen to.

If a new plantation is made every year it will be much the best system, as then there will be a one-year and two-year-old plantation in full bearing; but the one-year-old plantation will produce much the finer fruit.

VARIETIES.—Most gardeners have their favourite sorts, but I give a short list for succession:—Vicomtesse Hericart de Thury, Keens' Seedling, Sir Joseph Paxton, President, Sir Charles Napier, British Queen (in some soils), Unser Fritz, Loxford Hall Seedling, Frogmore Late Pine, and Oxonian.—A. YOUNG.

FLORA OF THE PHILIPPINE ISLANDS—At the recent meeting of the Linnean Society Mr. R. H. Rolfe of the Kew Herbarium gave a communication on the flora of the Philippine Islands and its probable derivation. According to recent computation the phænogamic vegetation of the Philippines consists of 3564 species belonging to 1002 genera. Of 165

dicotyledonous orders 119 are represented, and of monocotyledons 25 out of 35; while the three Gymnospermæ, though nominally there, are poor in number. The proportion of vascular cryptogams to phænogams is nearly one-eighth, chiefly Ferns. Of these 52 species are not known elsewhere, a fact stamping individuality on the flora. The endemic phænogamic vegetation consists of 917 species, or a proportion of over one-fourth endemic, the dicotyledons showing one-third, the monocotyledons about one-tenth. The striking feature of the flora is the large number of endemic species and the very small number of endemic genera. The flora approximates to that of the Malayan region; but very many typical Malayan genera—those even occurring on the neighbouring island of Borneo—are wanting in the Philippines. Taking into account the dominant Australian and Austro-Malayan features, along with numerous other data and reasoning, Mr. Rolfe infers that Mr. Wallace's idea of extinction of genera by submergence will not alone explain the present peculiarities of the vegetation. Mr. Rolfe looks upon the Philippines as truly insular in the essentials of their natural history. This is not so much through their being an early separation from the Asiatic continent which has had a dip under the sea, as from their being largely of volcanic and geologically of somewhat recent origin.

SHORT NOTES ON NEW VEGETABLES.

Veitch's Perfect Gem Lettuce.—This is indeed a gem. It is the most compact Cabbage Lettuce in cultivation. We are cutting beautiful samples of it now from seed sown in a little heat in February last. From this it will be seen it is not slow in turning in, and its firm crisp heads leave nothing to be desired in a Cabbage Lettuce. As an exhibition sort it will be a favourite.

Snowdrop Potato.—Some reader of the Journal in Northamptonshire sent me a few tubers of this Potato to try two years ago, and it has been a constant success here. The first year I had tubers of it 19 ozs. in weight, plenty of them, and no disease. Last year it had several prizes in this part, and from all I can see and hear it is without doubt one of the finest of kidney Potatoes. The tubers resemble those of International; the stems and leaves those of Schoolmaster. The crop is one of the heaviest, and the quality is far above the average. It is very early too, as we dug some good dishes of it the second week in May from beds which were made up and planted in February. I consider it amongst the best for early forcing, general crop, or exhibition.

Jefferies' July Surprise Kidney Bean.—This was sent to me from Cirencester. It grows about 18 inches high, is very dark and distinct in the leaf. The pods are produced in the greatest profusion. They are narrow, long, and tender, and when forced along with half a dozen other sorts this spring it came in before any of them by eight days.

Carters' Market Favourite Spinach.—A form of the Round-seeded variety, but it is earlier than the ordinary Spinach so well known in gardens. It is also rounder and bigger in the leaf, more compact in growth, and very profitable.

Venn's Early Cabbage.—I had some plants of this sent me by parcel post last November from Mr. Oliver, Elsington Park, Alnwick. It has turned out remarkably well. It is the most compact-growing, earliest, and best of all our spring Cabbages. This season not one of the plants bolted, and every one formed a massive head of fine quality. It is very distinct, and is certainly meritorious enough to be distributed as new.

Carters' New Holborn Crimson Marble-Tipped Radish.—It is almost impossible now to get a new Radish more handsome in shape and better in quality than existing varieties, as good Radishes have become so plentiful of late, but there is still room for development and quickness in gaining maturity; and besides possessing other good qualities, this one promises to be the earliest. About a month ago I sowed six varieties of Radishes in one day, including French Breakfast and Wood's Early Frame, both well-known early sorts, but that named above was up first, and it has kept the lead ever since.—J. MUIR, Margam.

PRIMULA SIEBOLDI.

For spring decoration there are few finer plants than these, as they make effective specimens for cool-house decoration, and are very useful for cutting. There is now a comparatively large number of varieties, and the little care needed in their culture with the ease of propagation render them useful for everybody who has a frame or greenhouse.

This Primrose is rather impatient of disturbance at the roots, but as stock must be raised I advise those that intend growing them into specimens to break up the strong plants in the autumn and make two sizes of the divisions—i.e., those with strong crowns and those with small, potting the first singly in 3-inch pots, and half a dozen strong crowns in 6-inch pots, whilst of the smaller crowns a dozen can be placed in a 5 or 6-inch pot. They should be potted so that the crowns are just covered with soil. Good loam from decayed turves of medium texture, with a fifth of well-decayed manure thoroughly incorporated, and a little sharp sand, form a suitable compost. The drainage should be free, as they require abundant supplies of water when growing, and a little charcoal mixed with the soil is an advantage; or part of the drainage may be of that material with the dust sifted out. Plunge the pots in coal ashes to the rim in a cold frame, and cover the pots with cocoa-nut fibre refuse as a safeguard against

frost, and to insure uniform moisture. If the soil be moist at potting time only a gentle watering will be necessary to settle the soil about the roots, and plunged as indicated above no water will be needed until the plants commence growth. The lights should only be used to throw off heavy rains, then tilting them, and in frosty weather they may be placed on and kept close with a covering over them, whilst in mild weather the lights can be drawn off.

When the plants commence growth remove the surfacing of cocoa-nut fibre refuse, and keep on the lights, but with plenty of air whenever the air is mild. All the protection needed is to keep clear of frost. One of the essentials is that they have plenty of light and air, so as to keep the foliage leathery and the flower stems sturdy. If it be desired to accelerate the blooming, a portion of the plants may be removed and placed on shelves near the glass in a greenhouse where the temperature does not exceed 50° in the daytime from fire heat, and 5° to 10° less at night. Water will need to be given as required, never allowing the plants to want for it; and, on the other hand, it must not be given while the soil is wet. When in free growth water with weak liquid manure or soot water, which will greatly invigorate the plants, giving colour to the foliage and flowers. The plants in the frame will flower in April or early May, and can be removed to the sitting-room window or greenhouse; and along with others of a similar character, as Auriculas, &c., are charming, the smaller plants being useful for many purposes to which the larger ones cannot be applied. After flowering shift into larger pots, merely loosening the sides of the ball, but not injuring the roots, and, removing any loose soil and the drainage, transfer to others 2 inches larger in diameter, and stand on ashes in a cold frame on a north border, where they should be freely ventilated. To insure good crowns the plants must be kept cool and shady; but if the frame must stand in a position exposed to the sun it should be shaded with tiffany or some other material that will break the force of the sun's rays. Weak liquid manure may be given occasionally, and the plants will make a sturdy leaf-growth. Allowing the plants to rest after flowering, keeping dry, and standing anywhere but in a moist shady place, results in poor foliage, small crowns, and very poor flowers in spring.

In the autumn the plants must not be disturbed, but remain as they are for flowering, and they will bloom finely, as they will have the roots at the sides of the pot, which they evidently like; and after flowering again they need not be shifted, keeping them in the same pots two years, after which they should be repotted, as excessive crowding of the crowns results in a poor display of bloom.

The small crowns that were potted rather thickly may be divided the following autumn, potting the largest six in 6-inch pots, the others singly in 3-inch, by which means a stock of plants will be maintained in the most servicable sizes, and the main plants not disturbed until after the second year.

There are numbers of varieties, but many are "washy" in colour. Some of the best are grandiflora alba, lilacina, lilacina marginata, rosea alba, violacea lacinata, Ruby, Magenta Queen, Purple Queen, rosea striata, clarkiaeflora, vincæflora, and the type P. Sieboldi (cor-tusoides amoena). For cutting purposes intermedia, which is smaller than the type and magenta in colour, and intermedia alba are very pretty. These are valuable for decorative purposes and cutting.—G. ABBEY.

WHAT IS AN AMATEUR?

THIS is a question that has often been before the readers of the horticultural journals, and the present time seems to be a fitting opportunity for discussing it on its merits. The proposals placed before the readers of the Journal by Mr. J. E. Waite ought to receive some consideration. Some people seem to think that the prize lists issued by the National Auricula and Carnation Societies are drawn up from a selfish point of view. I do not think so. I believe they are made out by the Committee to meet circumstances as nearly as possible. The majority of the fanciers are *bona fide* amateurs. The champion Auricula grower (Mr. Horner) is an amateur in the true sense; but the great difficulty appears to be—and I think this is the grievance—to keep the larger growers from competing in those classes reserved for small growers. The rules of the Society provide for this, but are they adhered to? I heard it several times remarked at the exhibitions of the Carnation Society at South Kensington and Slough, that the flowers in the first-prize stands of the classes that were reserved for the small growers were not grown by the exhibitors of them, but were supplied by one of the larger growers. Is this correct? If such reports as these could be explained I am certain the Society would not lose support. It would remove the "slurs" that are made on them. I say, Let the best flowers win when staged by the real growers of them. If the same exhibitor take the prizes at each succeeding show, more to his credit. Do not make classes to keep out the best growers and so encourage bad cultivation. Let the large growers keep to themselves, and if the smaller growers feel inclined to enter the lists against them let them do so and leave the rest to exhibitors' honour.—ONWARDS.

It is of the utmost importance that when definitions in schedules of

prizes are used they should be set forth as clearly as possible. A few years ago we found it necessary to put our exhibitors at the Ealing Show into sections, so as to equalise the competitions as far as possible. We made open classes, in which the gardeners having one, two, or more men under them and the small florists could compete together. The gardeners of small places were put into a division as single-handed gardeners, meaning thereby one who has no constant assistance, though he may have occasional help. The amateurs were put into a division, the term "amateur" being defined as one who does not constantly employ a gardener, but who has occasional help in his garden. Then we have a fourth division, in which cottage and allotment gardeners compete together. We find this arrangement to work uncommonly well on the whole, and I commend it to the attention of managers of flower shows. I send you the foregoing remarks as a contribution to a discussion now going on in your columns.—R. DEAN, *Hon. Sec. Ealing, Acton, and Hanwell Horticultural Society.*

EXTRA EARLY MILAN TURNIP.

THIS is a new introduction highly recommended by Messrs. Veitch, and having, moreover, the impress of excellence in the reliable form of a first-class certificate from the Royal Horticultural Society. Two seasons' trial had placed Early Munich indisputably at the head of all the early Turnips of which I could get seed. The best test, therefore, of Extra Early Milan was to sow it alongside of Early Munich. I have done so, and find it quite a week earlier than Early Munich, and flesh of excellent quality, white, sweet, crisp, and tender. At present there is no indication of premature bolting to seed, and I have every reason to regard it as a decided acquisition, superior to all other early varieties, and highly worthy of general culture.

Not only for its intrinsic merit do I call particular attention to this new Turnip, but also because advice was recently given to readers of the Journal to sow either it or Early Munich on the same day to obtain a supply of roots twelve days before other sorts are ready. Now, it is certain that Early Munich is surpassed for first place, and it may prove a bad second if, as Messrs. Veitch assert, Early Milan retains its good qualities and remains a long time fit for use, while Early Munich soon gets hot and bitter. The best sorts to follow Early Milan, therefore, are Early Red American Strap-leaf and Early Strap-leaf White Stone, followed by Snowball, Veitch's Red Globe, and Chirk Castle.—EDWARD LUCKHURST.

CULTURE OF THE AMARYLLIS.

It is quite certain that the Amaryllis will become a popular plant. Those who have not been able to visit the nurseries of Messrs. Veitch at Chelsea, or of Mr. B. S. Williams at Holloway, whilst the Amaryllis season is at its height can form no conception of the effect produced by these gorgeous plants. The varieties that have been raised at both establishments during late years are far in advance of those we were familiar with a few years back. The only deterrent fact to many would-be growers is the high price of the bulbs, which is owing to the slow increase of the majority, consequently the price will generally be high unless a variety may be perpetuated by seed in quantity. The seedlings as a rule bloom the third year if they have received generous culture. Those who are not in a position to procure a collection of the Amaryllis should try to have a few of the best of each type, and endeavour to raise seedlings. The culture of the Amaryllis is not difficult, but they require careful attention. Some gardeners a few years back (and there may be some now) maintained that to have the Amaryllis in good condition that the bulbs ought not to be dried off, but have moisture sufficient to keep the foliage green. These views are quite exploded, unless they can produce better examples of culture than those grown by the above-mentioned firms.

To produce good Amaryllises careful attention is required after blooming. The best position for them whilst making their growth is a span-roof house, with a bed in the centre for holding tan, and a walk round, or a bed on each side with a walk in the centre. The beds should be well filled with tan to keep the bulbs well up to the light; if the tan is low down in the pit the plants do not receive sufficient air. If it is new tan some old worn-out tan should be mixed with it to prevent violent heating, as a gentle bottom heat is what they require. Blinds should be provided to guard against bright sunshine.

Potting the Bulbs.—The first batch should be potted early in February. The soil best adapted for the Amaryllis is six parts fibry loam, one part prepared horse manure, with a half part of peat, with sufficient sand and pounded charcoal to keep the soil open. The size of pots used should be according to the size of the bulbs. They should also be well drained, the old soil being removed, and pot very firmly. They should then be plunged in the tan.

Watering.—No water should be applied to the soil until the bulbs have started into growth, and then it must be applied carefully. It must be remembered that when a plant is plunged, although the soil may look dry on the surface it may not be so underneath. If the house is kept well damped they will not dry very much. As the

season advances and the plants are growing well a slight syringing will be beneficial at closing time. A night temperature of 50° will do to start the bulbs, advancing to 55° as they increase in growth, allowing 5° extra by day with fire heat. A few days before the blooms are fully expanded the plants should be taken out of the tan bed and placed on the surface—that is, if the plants are required for the conservatory, but when there they must not be placed in a draught. After they have finished blooming remove them to the growing house, give the tan a turn, and plunge them again. The plants will then commence their second growth. Syringe in the afternoons of fine days, and give a good general watering about once a week. By the commencement of October the heat in the bed will have vanished, or if it has been kept up by hot-water pipes turn it off. The plants will be preparing for their winter rest; no water should be applied either at the roots or in the atmosphere, and ventilate freely. As the foliage dies winter the plants in a cool house free from frost if the house they have been grown in is required for other plants; if not, allow them to remain there.—A GROWER.

THE VINEYARDS OF OLD LONDON.

WE may supplement the observations recently published upon vineyards in England by some remarks upon the London vineyards more particularly, as being of interest to many readers who are in the radius of the million-peopled metropolis. Since this was the centre, undoubtedly, from which the knowledge and practice of horticulture radiated throughout our islands, it is not surprising that we have early records of the cultivation of the Vine in and near London. The place evidently once well suited the plant. There were plenty of gentle declivities, well watered, and to a considerable extent sheltered from keen winds by the old woods and forests that have now vanished, also an abundance of rich manure was attainable. Some say the climate of London was more favourable to the Vine formerly than it is at present, but much difference of opinion prevails on this point; the fact, however, is indisputable that the Vine was grown freely, and yielded well usually. It is evident there were vineyards about London in Saxon times (and possibly earlier), for Domesday Book records one at Holborn that belonged to the king, the after history of which is doubtful. Vine Street, Saffron Hill, was not named from it, but from the vineyard of Ely Garden, which dates from a later period. Also that memorable volume states that in the village of Westminster were four "arpents" of vineyard, held from St. Peter's by one Bainard, and at Chenesiton—i.e., Kensington, three "arpents," for which De Vere did service. Of the latter vineyard no trace remains. The former is very exactly described in documents of the Stuart times. It was "within the Millditch," the site somewhere near St. John's church and a Vine Street which still exists in Westminster. The Royal vineyard on the slopes above the "Old Bourne" may have subsequently become part of the botanist Gerard's garden, or that of one of his friends in that locality, one famous for horticulture during the reign of Elizabeth, though so different now. The vineyard of Ely Place was attached to the town house of the Bishops of Ely, and was planted by John de Hotham in the fourteenth century. It was part of the property which Queen Elizabeth forced Bishop Cox to surrender to the Crown in order that she might confer it upon her favourite Sir Christopher Hatton. Beside the reminiscence of Vine Street, the name of Saffron Hill close by recalls the time when Saffron was freely grown hereabout.

The unpromising but gradually improving Drury Lane of our day was once a real lane winding through the village of St. Giles's, having here and there a noble's or citizen's house, surrounded by a spacious garden. Few who live near, or who pass Vinegar Yard, a turning out of the above lane, are aware that its name is a corruption of Vine Garden Yard from a vineyard on the spot during the middle ages, but the Vines, or most of them, had been removed by the reign of Charles I. When we cross the Thames into Surrey we find a Vine Street in Lambeth, which the local historian says (on the information of the oldest inhabitants) was so called from vineyards that formerly flourished in the neighbourhood, upon which he adds the comment that probably the Londoners grew Vines more for shade or ornament than with the view of getting Grapes, but we should rather judge they got a sufficient return in fruit to encourage their culture. We wonder how the Londoners guarded their Grapes from juvenile depredators in the olden times. Certainly the laws against stealing were very severe until the seventeenth century. It is noteworthy that Lambeth and the adjacent Vauxhall more recently yielded quantities of Grapes for the market; these were, however, raised under glass, and the nurseries have given place to streets of houses. Attempts have been made of late to promote the planting of Vines about the south London suburbs; the result remains to be seen.

At Hammersmith a nursery, founded by James Lee, botanist and gardener, yet has the appellation of the "Vineyard Nursery." For some years in the early part of the reign of George III. much Bur-

gundy wine was produced here, and the wine was retailed on the premises. To add one more fact, the famous nursery of Brompton Park had a long extent of old wall, which had been in the years it was attached to a mansion a portion of the boundary that enclosed the deer park. Vines were planted along this wall, which extended nearly half a mile, about 1760, and, being yearly propagated, young plants were sent to various places in this country, or even abroad, and much fruit was obtained in favourable seasons.—J. R. S. C.

HARDY AZALEAS.

MUCH is written about hardy shrubs, and some of them really deserve all that can be said in their favour; but there are many which have no merit, and their introduction would only end in disappointment. Prominent amongst shrubs of the highest decorative value we would unhesitatingly place hardy Azaleas. It is really astonishing these splendid plants and flowers are not more noticed. They deserve to be strongly recommended to planters; it is impossible to say too much in their favour. In April, May, and June the gorgeous display they make in the pleasure grounds defies description. The flowers are pretty in form, beautiful in colour, and pleasing in fragrance; they develop in the utmost profusion, remain a long time in bloom. Of late our bushes of pink, yellow, white, crimson, and all shades have been charming. The largest are 10 feet high and from 30 to 40 feet round, and when these huge masses are in full beauty they are most impressive.

Rhododendrons are undoubtedly showy, and many consider them glaring, but they cannot outshine the hardy Azaleas in colours and fragrant flowers. No shrub I have ever seen in the pleasure grounds could surpass them, and I would advise all who have a shrub bed or border set about the introduction of some of these, and where space will admit a general collection may be obtained with certainty of their giving the utmost satisfaction.

There are scores of varieties, but I will only name a dozen of the most distinct and beautiful:—Admiral Ruyter, red, spotted with orange; Ardentissima, deep vermillion; Beauty of Flanders, sulphur; coccinea grandiflora, dark crimson; Cuprea Ardens, brilliant scarlet; Etcharis, deep pink; Globosa alba, pure white; Nathalie, fine rose; Or on, white, shaded with pink; Quadricolor, orange, red, salmon, and green (curious); Subtillissima, straw colour; Victor, crimson.

These are all distinct and beautiful, and form a very charming group. As to situations for them, they may be introduced to all kinds of shrub beds and borders, and in small clumps on the grass they have a good appearance. The spring is the best time to buy them in and plant out; but when they can be had in pots, as they may be in some nurseries, they may be planted now or at any time. A sandy soil deep and cool, composed of half peat and half loam suits them admirably, especially to induce them into immediate and free growth at the first; but when established the roots will run into almost any soil, and many of our best plants are now growing in soil which has no trace of peat. When planted at first, and until the roots are active, water should be given liberally at the roots in dry weather; but when established and growing they require no more attention than the most common Rhododendrons.—M. M.

CACTACEOUS PLANTS.

CONTINUING the notes on the columnar Cereus from page 405, the following are worthy of attention:—

CEREUS GIGANTEUS, *Engelmann*.—No stranger phase of vegetation can be conceived than that formed by the Giant Cereus in the districts of Mexico where it abounds, for these enormous columns of vegetable matter have been recorded as attaining the height of 60 feet, and specimens 40 to 50 feet high are of frequent occurrence. In particular localities, too, they are exceedingly numerous and near together, views of the scenery in such districts having a most peculiar appearance. Travellers have without exception commented in wondering terms upon these singular occupants of rocky or sterile soil; but one of the best descriptions is that by Möllhausen in his "Diary of a Journey from the Mississippi to the Coasts of the Pacific," in which he remarks: "The absence of every other vegetation enabled us to distinguish these Cacti columns from a great distance, as they stood symmetrically arranged on the heights and declivities of the mountains, to which they imparted a most peculiar aspect. Wonderful as each plant is, when regarded singly, as a grand specimen of vegetable life, these solemn silent forms, which stand motionless even in a hurricane, give a somewhat dreary character to the landscape. Some look like petrified giants stretching out their arms in speechless pain, and others stand like lonely sentinels keeping their dreary watch on the edge of precipices." In Dr Engelmann's magnificent work on the Cactaceae of the Boundary Survey is an admirable engraving of such a scene on the banks of the Gila, New Mexico, from a drawing by Möllhausen; and so well does this portray the characters that it has been reproduced in several works (including the *Flore des*

Serres, vol. xv., and the *Treasury of Botany*). Some of the giants are shown with enormous stems, from which proceed a number of branches, which, when a short distance from the main stem, assume a rigidly perpendicular position, and give a candelabra-like appearance to the plant. One is represented with eight branches, varying in size, while older specimens which have lost the greater portion of the soft cellular tissue have only the woody or fibrous matter remaining, and this has been most strangely torn, until the ends of the branches resemble birch brooms. In this state they remain for many years, still further increasing the peculiarities of the landscape.

Julius Froebel has given a very graphic description of a *Cereus* district in his "Travels in Central America," page 498, which is worth reproduction here: "In the lower part of the valley of Santa Cruz the gigantic columnar Cactus, *Cereus giganteus*, is first seen upon the road. The inhabitants of the country call it Saguaro; but various authors, and recently Bartlett, have applied the name of Pitaya (Pita-haya) to this remarkable plant. This name, however, belongs to another species of Cactus of a similar but much lower growth. The Saguaro presents a thick fluted column, the size of a man's body, and 30, 40, and even 50 feet high, with sometimes three or four branches at its top, the whole looking like a gigantic candelabrum. The fig-shaped edible fruit grows at the edge on the top of the columns; and from the great height of the latter it would be difficult to get at them, did not this remarkable plant itself afford the means of reaching it. The old stems, when decayed, split into a number of thin poles, standing in a circle the height of the entire column, enveloped in a loose network; and by the aid of these the traveller is enabled to knock down the fruit. I have been told that these poles form an article of export from the port of Guaymas, and in Europe are made into walking sticks, and sold under the name of "Spanish canes." I cannot, however, vouch for the correctness of this account. The Pimas at the old Mission of San Xavier del Bac had a large store of Saguaro fruit, which is used as food in various ways. It is eaten fresh; the sap is boiled to a syrup, known throughout Sonora by the name of 'Miel de Saguaro'; and a flour is prepared of the cleaned and dried seeds, which have some resemblance in appearance and taste to Poppy seeds, and are contained in the fruit in great quantities. This flour is made partly into bread and partly into a chocolate-like drink, called Atole. The fruit of the Pitaya is said to be far better than that of the Saguaro. Both are of great importance to the population of Sonora. In some bad harvests occasioned by the want of rain, shortly before my journey through this State, a large portion of the inhabitants were obliged to live on these and other wild Cactus fruits."

Cultivated plants of this *Cereus* are mostly of small size, not exceeding 4 or 5 feet in height, and the majority are much smaller. These are generally inclined to be globular when young, but as they advance the ridges become apparent, of which there are generally twelve, 1 inch deep and thick, and $1\frac{1}{2}$ to 2 inches apart. The spines are ashy grey, twelve to twenty or more in a cluster, rigid, half to 1 inch long, the clusters being about half an inch apart. The stem is 6 inches to 12 inches in diameter in cultivated plants, but becomes much larger in its native habitat. The flowers I have not seen in England, but they are described by Engelmann as creamy white, the petals $1\frac{1}{2}$ inch long and three-quarters of an inch broad. By the same authority it is said that the fruit has the hardness of a green Cucumber, bursting open with three valves, and then looks like a flower, owing to the abundant crimson pulp inside with black seeds. This pulp, which has the consistency of a fresh Fig, separates from the other portion of the fruit when ripe and falls to the ground.

Some difficulty is experienced in growing *C. giganteus* in this country, its progress being very slow in its early stages, and in reference to this it is worthy of remark that Engelmann mentions "the young plants are almost always found under the protecting shade of some shrub, especially *Ceradium floridanum*, so characteristic of the barren wilderness." It would therefore appear that shade is beneficial in assisting the growth at first, and the hint might prove serviceable to growers who are not very successful with it. The seeds germinate freely, and those distributed by Mr. Thurber in Europe and America some years ago have yielded a large number of plants, so that the species is by no means rare. Closely related to this is *C. Thurberi*, which is found in some districts of Mexico, and is said to bear a fruit like an Orange, 3 inches in diameter, with crimson pulp. It is termed Pitahaya by the natives, and under that name is mentioned by several travellers.

Many more species might be described, but it will suffice to mention a few of the most interesting, as large collections are seldom seen in cultivation. *C. niger* is noteworthy for its peculiar dark green colour, which is especially observable in the young growth. *C. Jamacaru*, a Brazilian species, is very distinct and even handsome, for the ridges are very prominent, and the colour of the young shoots is quite a glaucous blue, sometimes very bright. *C. Tweediei* is a pretty and distinct species, with slender stems and tubular orange-yellow flowers, 2 inches long, and crimson stamens. It is free, and when in flower is very beautiful. *C. triangularis* is an old inhabitant of English gardens, and is easily distinguished by its triangular stems, and is remarkable for its bright scarlet fruit, the size of a goose's egg, the flavour of which is compared to Strawberries; indeed the plant has been called the Strawberry Pear. *C. repandus* also has a fruit which is considered to resemble a Strawberry in flavour, and the dry stems were at one time used as torches to assist the natives in catching fish. *C. macrogonus* is a quick-growing species, and is therefore useful for grafting many other Cactæe upon, as has been already noted. *C. eandicans* is notable for its slow growth, and as far as I can ascertain it has never flowered in this country.

Mr. Major has a plant in his collection at Cromwell House which is nearly thirty years old, and is not 2 feet high, one of the most extraordinary instances of slow growth which has come under my observation.

The climbing or slender-growing species, which include some of the most beautiful and useful of the *Cereus* in a horticultural point of view, are numerous, but the following may be named as particularly worthy of culture:—

C. GRANDIFLORUS, Haworth.—The Night-flowering *Cereus* has gained a fame which entitles it to prominent notice, and plants might well be included in every garden, for its flowering is a source of interest to the least observant persons. In the character of producing its blooms at night it is not alone, as several of the slender-growing species have a similar habit, but none equal this in beauty and fragrance.

"That flower, supreme in loveliness and pure
As the pale Cynthia's beams, through which unveiled
It blooms, as if unwilling to endure
The gaze by which such beauties are assailed."

The flowers are really magnificent, and a plant with a dozen or two



Fig. 96.—*Cereus grandiflorus*.

expanded at the same time has a superb appearance, particularly in the early evening when the flowers first expand, and the powerful fragrance they emit is very agreeable, having been not inaptly compared to Vanilla. The stem is nearly cylindrical, with a few faintly marked ridges, bearing small clusters of spines, and rarely exceeds 1 inch in diameter, but attains a length of many feet, freely branching. The flowers vary in size from 6 inches to 12 inches in diameter, the usual size being 8 or 9 inches; the sepals are narrow, acute, and spreading, about one-quarter of an inch broad, 4 to 5 inches long, and thirty to forty in number, forming a beautiful fringe round the broader pure white petals, which are more in the form of a cup, the stamens being extremely numerous with very long filaments. Mr. Major, however, informs me that he has seen two very distinct forms, one having the petals distinctly cupped, and the other with

them spreading more like the sepals, the two forms also differing slightly in colour.

Large specimens of this *Cereus* are not rare in old gardens, but the finest known to me is one in a stove at Leigham Court, Streatham, the residence of Mrs. Treadwell. This covers a space on the back wall about 30 feet long and 3 or 4 feet wide. The old stem and roots are lost, the plant subsisting entirely upon the moisture in the atmosphere of the house and that furnished by the moss with which the trellis is packed, and in which the branches have freely rooted. About forty grand flowers have been produced by this plant in one season, which generally expand in batches of a dozen or so, and the only encouragement the plant receives when making its growth is syringing it with clear water and occasionally with very weak liquid manure. Flowers were kindly sent me by the gardener, Mr. E. Butts, and the characters are well portrayed in the woodcut (fig. 96). Another very large specimen is grown in a house at Pendyffryn in Wales, which Mr. Siddall of Chester informs me has had from sixty to eighty flowers open at one time.—LEWIS CASTLE.

(To be continued.)

A ROSE'S REPLY.

REALLY, Mr. Editor, I wonder you insert such antiquated sentiment as on page 400. Dear old indignant dowager! or, I wonder, was she a maiden blush in her best days, and has been blushing for the blindness of the men ever since? What, not want to be exhibited? Is there a woman in the world—a Rose I mean—that objects to be looked at properly, front row or back row?

Better fourteen days of D'Ombra
Than a cycle of Cathay.

And then the name will not do—Pedigree Roses! Perhaps dear Mr. Bennett, had he taken as much pains over that as over our appearances' might have found out a prettier one. There are plenty across the water which it takes two pens to write. Handsome is that handsome does. I always feel much obliged to the featherless bipeds that slave for us, and look us out husbands with such care, and put us in such pretty boxes, and carry us to Crystal Palaces and bow down before us. What could the creatures do more? I think it was a Wallflower, not an old Rose, who wrote to you. Country quarters are all very well; pretty parsonages may do for good old Cabbage, Persian Yellows, and common Mosses, but give me the glorious thrill of battle and the gathering of the clans,

"And that stern joy which warriors feel
At foemen worthy of their steel."

"Vulgarised," quotha. The slaves that toil for us, and fetch and carry, are refined by their very employment. Scentless Dahlias, flaunting Hollyhocks, preposterous Pæonies, might perhaps be called such. I cannot say I care much for those pretty impostors, those Orchids, that now all the world is going mad on. But Roses vulgarised! Rose shows reprehensible! Our lovers deserting us! This season will show.

"Were I a flower knight in arms,
As one day I may be,
My heart should own no meaner charms:
A show Rose still for me.

"'Tis hers the crowded tents to brave
That thinner petals fear,
To challenge east, and west, and north,
In size or form come near.
She can the serried ranks opposed,
With eye unflinching see;
Emerge victorious from the strife,
With medals gold and silver rife:
A show Rose still for me."

—A ROSE OF THE PERIOD.

TUBER-BEARING SOLANUMS.

ON January 17th of the present year Mr. J. G. Baker of the Kew Herbarium gave the outline of a paper upon this subject before the Linnean Society, a summary of which we gave upon 57 of this Journal (January 24th). Mr. Baker's observations and descriptions of the species have been printed in the Society's journal, and are now issued separately. Full descriptions of the species are given under the countries in which they are found, together with general remarks as to the climates and positions in which they abound. Plates are also given of the principal types—*Solanum tuberosum*, *S. Maglia*, *S. cardiophyllum*, *S. Commersoni*, *S. Jamesii*, and *S. oxycarpum*, which Mr. Baker considers entitled to be regarded as species in a broad sense, the remaining fourteen so-called species being probably varieties of *S. tuberosum* or *S. Commersoni*.

The paper concludes with some interesting economic suggestions which we here reproduce.

"What Lord Cathcart asked for were any suggestions that a botanist might be able to give, founded upon his knowledge of the Potato plant and its geographical distribution, that were likely to be of practical value to cultivators. In reviewing the subject the considerations of this character that occur to me are these:—

"In the first place, it always seems to me that cultivators work upon the tacit assumption, if I may so express it, that the one object in life of the Potato plant is to grow Potatoes, and that this assumption has no sound foundation in fact or reality. *Solanum* is one of the largest genera in the vegetable kingdom. About 900 names stand in the botanical books

as species, and Bentham and Hooker estimate that probably 700 of these are really distinct. Of these 700 it is only six that grow Potatoes at all, and the remainder all maintain their hold in the world as most plants do, by means of their flowers, fruits, and seeds. I do not think that the Chilean *S. etuberosum* and Mexican *S. snaveolens* are more than mere forms of *S. tuberosum*, and they are said to be quite destitute of tubers; and there is the fact noted by Sir J. D. Hooker, that when *S. Maglia* was first grown at Kew, for two years it did not yield any tubers. A great many of the cultivated varieties rarely produce flower and fruit. Any plant brought to the tuber-bearing state is in a disorganised unhealthy condition, a fitting subject for the attacks of fungi and aphides. The great difficulty with which we have to contend in fighting disease is that in the Potato, as in other cultivated species, we grow in great masses plants which in a state of nature are scattered amongst others.

"The relationship of tuber to fruit is so clearly shown by one of the experiments of Mr. T. A. Knight that I will cite it in this connection. 'Every gardener knows' (he writes in 'Philosophical Transactions,' 1806, p. 297) 'that early varieties of the Potato never afford either blossoms or seeds; and I attribute this peculiarity to privation of nutriment, owing to the tubers being formed preternaturally early, and thence drawing off that portion of the true sap which, in the ordinary course of nature, is employed in the formation and nutrition of blossoms and seeds. I, therefore, in the last spring planted some cuttings of a very early variety of the Potato which had never been known to bloom in garden pots, having heaped the mould as high as I could above the level of the pot, and planted the portion of the root nearly at the top of it. When the plants had grown a few inches high they were secured to long sticks, which had been fixed erect in the pot for that purpose, and the mould was then washed away from their stems by a strong current of water. Each plant was now suspended in the air, and had no communication with the soil in the pots, except by its fibrous roots; and as these are perfectly distinct organs from the runners that generate and feed the tubers, I could readily prevent the formation of them. Efforts were soon made by every plant to generate runners and tubers, but these were destroyed as soon as they became perceptible. An increased luxuriance of growth now became visible in every plant, numerous blossoms were emitted, and every blossom afforded fruit.'

"Secondly, a suggestion as to what might be done towards widening the power of climatic adaptation of the cultivated Potato. There are certainly six distinct species of tuber-yielding *Solanum*, each with its own distinctive climatic peculiarities. I went to Messrs. Sutton's trial grounds specially to investigate this point, and came away fully satisfied that all the numerous varieties in cultivation had originated from *S. tuberosum*, as here defined. As far as climate is concerned, it cannot be doubted that *Solanum Maglia* (or the Darwin Potato as we might suitably christen it in English) would be better fitted to succeed in England and Ireland than *S. tuberosum*, a plant of a comparatively dry climate. We have indisputable testimony that *S. Maglia* and *S. Commersoni* yield readily an abundant supply of eatable Potatoes. What I should suggest is, that these should be brought into the economic arena, and thoroughly tested as regards their economic value, both as distinct types and when hybridised with the innumerable *tuberosum* forms."

A RAMBLE IN DERBYSHIRE.

IMAGINATION cannot form a view of more luxuriant rural beauty than that seen as the visitor wanders by the banks of the river Derwent from Cromford station, near Matlock, to the isolated village of Holloway, where amongst the hills industry is rife with spinning and weaving. Entering the village on the right we are at once struck with the residence of Wm. Walker, Esq., Lea Wood, a splendid piece of architecture in the old half-timbered style, erected about six years. It is approached by a straight wide drive through a fine dark oak gate with a commodious lodge, quite in harmony with the mansion. On each side of the drive is a broad band of turf, having a raised bank on the left of fine ornamental and flowering shrubs, hiding the kitchen garden, vineries, and plant houses. A broad walk surrounds the mansion, looking down on one side to a very pretty flower garden, with the valley of the Derwent below, and the fine woods of Alderwasley in the distance. The spring bedding just fading displayed fine taste in the blending of soft colours—a centre bed composed of Wallflower, *Arabis alba*, *Cheiranthus*, *Forget-me-not*, white Daisy, with Royal Standard and Duc Van Thol Tulips intermixed was a lovely combination. On another side of the mansion the grounds rise to some extent with terraces, adjoining the estate of Miss Florence Nightingale, a well-known heroine. A pretty slope on this side of *Berberis* pegged down was very effective, with the conservatory gay with Roses fine, &c., in a snug corner, completed a very harmonious and compact dressed garden. Grapes were in excellent condition, with fine crops of Muscats, the plant houses being well stocked with good plants in excellent condition. A very fine specimen of *Adiantum farleyense* grown close to the glass was telling. The whole keeping reflects great credit on the able and intelligent gardener, Mr. Alfred Anderson.

Passing a little higher on the opposite side of the road are seen the glass houses of a gentleman who evidently is a great lover and enthusiastic grower of fine plants. The houses abound with good things in fine health, telling what R. Wildgoose, Esq., enjoys, and his clever plant grower, Mr. C. Yates, can produce for so worthy a master. The old *Sparmannia africana* was very striking and pretty in the conservatory, with other good plants in large numbers. Houses are being built, and there is great promise of this becoming a fine plant-growing place. Mr.

Yates seems gifted in this way, and he receives every encouragement from his employer.—GEORGE BOLAS.

PEONIES.

WHAT is finer than the great saucer-like flowers of the single and the large globes of the double varieties of *Pæony*? No plant can vie with them in their season for affording a show in the borders. I do not mean to put forward the *Pæonies* as rivals of the *Iris* or *Pyrethrum*, for the herbaceous border is large enough to hold the three, and such a trio cannot be equalled in late May and early June for beauty and usefulness. The *Pæony* is an old-fashioned plant; it could be found in almost every garden many years ago, and is coming to the fore again. Pliny mentions the *Pæony*, stating it was so named in compliment to *Pæon*, a famous physician of antiquity, and it (*Pæonia officinalis*) has been in England since 1560, and of the family we claim one—viz., *P. corallina*. Gerard mentions having seen it wild at Southfleet in Kent. How they come to be termed Chinese *Pæonies* I cannot imagine, as China contributed only some forms of the species *albiflora*, the chief of the species being European. There is no doubt we are indebted to *P. albiflora fragrans* for the scent which many of the French varieties possess, otherwise the Celestials have a very small claim to the origin of the herbaceous *Pæony*.

These flowers travel well, and are useful for cutting, some of them being delightfully fragrant. Some consider them coarse and lumpy; but they are not a whit more lumpy than a *Rose*; indeed they are to the herbaceous border, shrubbery, and wild garden in May and early June what the *Rose* is later on. Call them May *Roses* if you will, or Mountain *Roses*, as I believe the Spaniards do, only do not class them with anything less than their merit deserves, which is as a foremost decorative and useful plant and flower in early summer is especially valuable. What are finer for large vases than bright massive blooms of *Pæonies* set with long stems supporting the flowers amid their handsome foliage? In a cut state they last a long time, and being the hardiest of hardy plants, they are not so soon dried up as more tender plants. One of the great merits of these *Pæonies* is their size and glowing colours, and they can be grown by everybody, not being very fastidious as to soil if it be rich, porous, and deep, and that any soil can be made by trenching and adding manure; lightening heavy soils by adding ashes or the refuse from the potting bench suits them exactly. They like moisture, only it must not be stagnant, and when in flower water will help them wonderfully to swell the second flowers, the first being always the largest, and the side ones smaller. After flowering the application of liquid manure will help them to form strong flower buds for another year, and a mulching of short manure in autumn is advantageous, as it is in a light shallow soil in summer.

Once planted they take care of themselves; but until they become established no estimate can be formed of their capability for effect. They should be planted in autumn, that being the best time to divide them; every crown taken off with a portion of tuber will grow, and they must not be planted deeply—merely covering the crown. If planted in spring they do not succeed nearly so well as when planted in autumn. Numbers of varieties, both single and double, are described in catalogues.—G. A.



AT the General Meeting of the ROYAL HORTICULTURAL SOCIETY held last Tuesday, G. T. Clark, Esq., in the chair, the following candidates were unanimously elected Fellows—viz., Edward C. Browning, Walter Barnard Byles, Dowager Viscountess Canterbury, Stewart Clark M.P., Mrs. Stewart Clark, Harbhamji Kumar of Morbi (India), Mrs. G. Head, J. Mears, Edwin Roper, M.D., Henry W. Tugwell, and Maj. r Williams.

— ESTABLISHING A ROOKERY.—We are reminded that this topic was discussed some years ago in "Science Gossip," and several naturalists expressed opinions; the conclusion then was that there is no means known of inducing rooks to found a colony, they will do as they please.

— THE CANTERBURY GARDENERS' MUTUAL IMPROVEMENT SOCIETY announce their seventh autumn Show for November 14th and 15th, when prizes, chiefly of small amount, will be offered in very numerous classes for *Chrysanthemums*, fruit, and vegetables.

— WE learn with pleasure that the Lady Mayoress has kindly consented to hold "A ROSE SHOW AND FLORAL FETE" AT THE MANSION HOUSE, on July 17th, in aid of the funds of the Royal Hospital for Children and Women, Waterloo Bridge Road, London, S.E., of which Mr. R. G. Kestin is the Secretary.

— "CASUALTIES AND DISEASES OF VEGETABLE LIFE."—Under this title, Mr. Bruce Findlay, Curator of the Royal Botanical and Horticultural Society of Manchester, delivered an interesting lecture in the Town Hall, Manchester, early in the present year, which is now issued by Mr. John Heywood in pamphlet form. The subject is divided into three sections—1, Wounds, under which are considered boring, fractures, pruning, felling, destruction of buds and leaves; 2, Diseases, including blight, smut, mildew, honeydew, flux of juices, gangrene, suffocation, and consumption; and 3, natural decay.

— THE VALE OF EVESHAM HORTICULTURAL SOCIETY will hold an Exhibition of *Roses* on July 8th of the present year in the Workman Pleasure Grounds in conjunction with the annual regatta. The classes are comparatively few, only fourteen being enumerated, but the prizes are liberal. Messrs. Cranston & Co., Hereford, offer three prizes for a basket of *Roses* arranged with *Rose* foliage only, and F. D. Dixon-Hartland, Esq., M.P., also offers prizes for *Rose* bouquets and button-holes.

— "J. W. S." writes:—"At the residence of H. E. Watson, Esq., Shirecliffe Hall, Sheffield, there is now a very fine specimen of the beautiful RHODODENDRON DALHOUSIÆ in full bloom, with between sixty and seventy of its large yellowish-white flowers, which give a very agreeable odour during the evening and through the night. This species will grow to a great size with very little soil, as the plant referred to is about 10 feet high; its roots are confined to a 14-inch pot, and it is in vigorous health, associated with the *Camellias* in the *Camellia* house. The very fine examples of the latter have, under the skilful management of the gardener, Mr. Udale, justly gained the reputation of being some of the best in the country."

— MR. G. BOLAS, Hopton Hall Gardens, Wirksworth, Derby, sends us flowers of CEANOTHUS VEITCHIANUS, and remarks that it is "a most charming effective plant on the wall. It was planted five years ago from a small pot, and now covers a space 20 feet by 12 feet. The flowers kept peeping all winter, and last year it was equally as good. On a wall 120 yards long, covered with good shrubs and climbers, nothing surpasses this."

— A CORRESPONDENT writes:—"Your leading article on DOUBLE PELARGONIUMS (page 397) cannot fail to be instructive, and came just right in the season, so that stocks can be renewed. I do not grow many, but have one in bloom—namely, Pretender, and I would like to hear if this is likely to be a suitable variety for pot culture. I like its present appearance. Madame A. Baltet is good; the same can be said of M. Thibaut, but Asa Grey became spotted in the leaf, though the colour of flower is novel."

— AT the annual Show of the BATH AND WEST OF ENGLAND SOCIETY, which opens at Maidstone on June the 2nd, and continues for five days, the horticultural tent will contain a choice display of exotic plants and flowers, the opportunity of exhibiting rare specimens having been largely taken advantage of. The plants will be arranged with a special view to illustrate the beautiful effects which can be obtained by skilful groupings and combinations of colour under the superintendence of the Hon. and Rev. J. T. Boscawen, who has worked so indefatigably and successfully at the Exhibitions of the Society for a number of years.

— HOVEA CELSII.—Mr. C. M. Major of Croydon writes:—"Your correspondent 'Conservative Rose' asks for the names of plants with blue flowers. Many have been given, but one that I have always esteemed as the most beautiful has been forgotten. I mean *Hovea Celsii*." This is undoubtedly one of the most richly coloured of blue-flowered greenhouse plants, and one of the good old plants that are too much neglected.

— ALEYRODES VAPORARIORUM.—A correspondent writes:—"These tiny insects are certainly difficult to kill, and some say that, as

with the red spider, nothing is so effective as sulphur applied as vapour in houses or combined with water out of doors and thrown in by a syringe. Another species is frequent upon the Cabbage, and I have observed that a solution of softsoap 'fetches them;' they cannot stand this. Also I think it probable either hellebore tea or diluted paraffin would kill." Mr. William Jenkins thinks that fumigating three or four times in succession will eradicate the pest. Mr. Stephen Castle observes, after trying fumigation and various insecticides, he has to confess himself beaten by this insect. The only method of eradication he can suggest as likely to be effectual is cutting down the affected parts of Tomatoes that it infests, lay them on the border, and the next morning carefully take them out of the house and burn them.

— A CORRESPONDENT, in referring to the admitted beauty of Horse Chestnuts when in flower, states that "the LARGE CHESTNUT AT MONCREIFFE (said to be the largest specimen in the country) presents just now (May 26th) a noble appearance, and is well worthy of admiration. This colossal giant from its topmost branches down to the great limbs which sweep the ground is one complete mass of dark healthy foliage, and from nearly every growth is produced a spikelet of white blossoms standing out bold and erect. Its huge size and majestic appearance truly constitute this the finest tree of its class in the neighbourhood."

— THE following RECIPE FOR DESTROYING RED SPIDER AND MILDEW has been sent to us by an experienced gardener who has proved the value of the preparation:—"2 lbs. yellow sulphur, 2 lbs. lumps of lime; boil it twenty minutes in 10 quarts of water, keep it well stirred when boiling, let it stand till cold, then bottle and cork down; put one wineglassful to an ordinary size pail of water." The best time is to syringe in the evening, and in a day or two the plants, &c., may be syringed with clean water. One dressing is generally sufficient, but should be repeated if required.

— THE annual Show of the CHISWICK, TURNHAM GREEN, AND DISTRICT HORTICULTURAL SOCIETY will be held in the Royal Horticultural Society's Gardens on Thursday, July 3rd. Substantial prizes are offered in the fifty-seven classes for plants, cut flowers, fruit, and vegetables, and we doubt not that the high character and diversity of the Society's Shows will be maintained. Mr. J. T. Musgrave, Branstone Lodge, Heathfield Gardens, Chiswick, is the Honorary Secretary of the Society, and from whom schedules are procurable.

— IN the remarks referring to the new ROSE HER MAJESTY on page 378, the impression is conveyed that Mr. Bennett does not intend distributing this variety in England. There is no foundation whatever for this opinion, and it is possible that the writer had some confused remembrance of the agreement relating to the variety William Francis Bennett, which was sold provisionally to an American firm.

— EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY. — On the 27th inst. a large body of members of the above Society entertained at dinner their President, the Right Hon. S. H. Walpole, in commemoration of the fact that the present year is the twentieth anniversary of Mr. Walpole filling that position. E. M. Nelson, Esq., J.P., of Hanger Hill House, occupied the chair, among the company being the Right Hon. Lord George Hamilton, M.P., the Rev. G. Henslow, &c. The toast of "Success to the Ealing, Acton, and Hanwell Horticultural Society" was responded to by Mr. R. Dean, the Hon. Secretary, and that of "Success to the Botanical and Horticultural Societies of the United Kingdom" by Mr. Henslow. The hall was decorated in a charming manner by Mr. H. B. Smith, and the proceedings throughout were of the most interesting and satisfactory character. It was announced that the summer exhibition of the Society would take place in the grounds of the Manor House, Ealing, on Wednesday, July 9th.

— A CORRESPONDENT in sending us a schedule of the WIRKSWORTH ROSE SOCIETY, the Show of which is arranged to be held on July 17th, observes:—"Three years back we got up an annual flower show that has grown amazingly. Roses, they said, could not be grown on the limestone here, but they sing a different tale now, and we are bound to have a Rose Show. During my ten years here it is the first Rose Show held during that time in Derbyshire, though not in any way central. We are setting, I think, a good example by showing what out-of-the-way places can do, being only accessible with a single line from Derby—thirteen and a half miles." The schedule contains twenty-four classes, the leading prizes being £5 for forty-eight varieties (nurserymen) and the same amount for twenty-four varieties (amateurs). The interest that is taken

in the Society is exemplified by the provision of twenty special prizes by residents in the district.

MR. SMEE'S ORCHIDS.

THE rapidly increasing collection of Orchids at the Grange, Hackbridge, the "My Garden" of the late Mr. Alfred Snee, and now equally cherished by his son, never looked better than at the present time. Many plants are in flower, and hundreds of others becoming satisfactorily established; while the plants that were placed outdoors during the whole of last summer appear to have been invigorated by the change. The *Masdevallias* are especially strong and producing fine flowers freely, and the *Dendrobiums* that had a long sojourn in the open air flowered distinctly sooner than others that were kept under glass. *Cattleyas* are particularly attractive now. The plants are not large, but the varieties are good and flowers fine, especially *C. Mossiae aurantiaca* and a variety either identical with or closely resembling *C. M. Southgatei*, these with the following producing an attractive display at the present time:—*Cœlogynes ocellata* and *speciosa*; *Camarotis purpurea*; *Cattleyas labiata* *Roezlii*, *amethystina*, *Mendeli*, *Mossiae* (light, distinct, 50 blooms), *Mossiae aurantiaca* (fine, 50 blooms), and a *Mossiae* similar to *Southgatei* (50 blooms); *Cirrheæ viridis purpurea*; *Colax jugosus* and *jugosus grandiflora* (dark markings); *Brassia Keiliana*, *maculata*, and *verrucosa*; *Dendrobium capillipes*, *Bensoniae*, *Findleyana*, *japonica*, *Pierardi*, and *thyrsiflorum*; *Epidendrum alatum*, *evectum* (rich colour), *vitellinum majus*, and *axanthinum*; *Cypripedium barbatum* and *hirsutissimum*; *Lælia cinnabarina*, and *purpurata* (good); *Lycaste Harrisonæ* and *Skinneri*; *Masdevallia ignea superba*, *Harryana*, *Harryana cærulescens*, *Harryana Lindeni*, *Harryana sanguinea*, *amabilis*, *coriacea*, *Estradæ*, *Lindeni*, *peristeria*, and *Wagneri*; *Odontoglossum Alexandræ* (good forms), *cirrhosum*, *cordatum aureum*, *citrosimum*, *Pescatorei*, *luteo-purpureum*, *Roezlii*, and *triumphans*; *Oncidium crispum* (very dark), *concolor*, *fuscatum*, *Krameri*, and *sphacelatum*; *Phalænopsis Manni*; and *Vanda tricolor*.

THE INSECT ENEMIES OF OUR GARDEN CROPS.

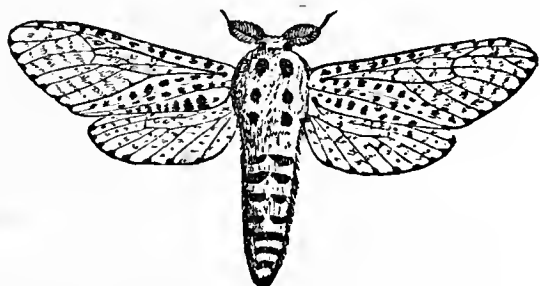
THE PEAR.

AMONGST the fruit trees of our gardens and orchards the first place undoubtedly belongs to the Apple, but opinions may be divided whether the second place is to be assigned to the Pear or to the Plum. The Pear, like the Apple, is made to yield a beverage, yet its fruit, owing to its perishable character, is of little value for preserving, wherein the varieties of the Plum have the advantage. But we very frequently link together the Apple and the Pear. Their fruits have a similarity, and it is noticeable that many of their insect foes are identical. Perhaps it may be said on a survey that the Apple has more numerous enemies than the Pear has, yet the latter is apt to suffer severely through insects which visit it. Seldom, indeed, do we fail to hear complaints from some district of loss occasioned, even when the weather has been not unpropitious. From root to fruit the Pear affords agreeable food to a variety of insects, and their persistency in some cases calls out all the energy and skill of the horticulturist.

It is chiefly those Pears that are trained against walls that are liable to have their roots attacked. After a certain age standards are able to defy the species, which make their approaches in this manner. Centipedes and millipedes are wont to lurk beneath young Pears, perhaps not doing much harm, as they come abroad at night. These may be trapped into little pots filled with decayed roots or damaged fruit, and soot or lime may be sprinkled upon the surface of the soil. As the parent weevils of the genus *Otiorhynchus* are particularly apt to infest fruit trees in houses or against walls, the presence of their maggots at the roots in such situations is a natural consequence. The maggot or larva of the black Vine weevil (*O. sulcatus*), and that of the red-legged or Apricot weevil (*O. tenebrioides*), have been taken at the roots of the Pear, but they are chiefly injurious to softwooded plants. Should they, however, as will sometimes occur, have been abundant about a garden in the beetle state, after these have been dealt with it may be advisable to remove the upper portion of the soil round Pear trees upon walls, and should some be detected as maggots, soapsuds, ammoniacal liquor properly diluted, or a weak solution of paraffin, will be generally sufficient to destroy them.

The wood leopard moth (fig. 97) is not inappropriately so named in English, because the species grows to maturity in wood, and the moth is somewhat leopard-like in its markings. But the Latin name is less suitable—viz., *Zeuzera asculi*, since it is seldom discovered in the wood of an *Æsculus* such as the Horse Chestnut, though often taken upon Ash, Elm, Lime, and Birch, also upon several fruit trees. From a variety of observations I believe it is very partial to the Pear and it is with that tree Miss Ormerod associates the insect in her "Manual" of the hurtful species. The moth is rather sluggish, but is preyed upon in the day by sparrows, and at night by bats, so that their numbers

are thus diminished, fortunately, since each female deposits nearly 300 eggs. She is larger than her companion, and has wings more transparent, the tail being provided with a long ovipositor, by which the eggs are thrust into crannies of the bark. In both sexes the fore wings are white, with numerous well-defined spots of bluish-black; the hind wings are also whitish, but the spots are less distinct. On the thorax there are six large black spots arranged in three pairs. The season for the moth is from June to August, its time of appearance varying, but it is only upon the wing two or three weeks, though the caterpillar life probably continues many months. There is a resemblance between the caterpillar and the moth, the whitish-yellow body having black spots from head to tail. The feet are sixteen in number, and behind the head is a horny plate which aids the creature in its work of driving channels through the solid wood. When it is full grown, this caterpillar is led by instinct to form its cocoon close to the loose bark, leaving a mere film between this abode and the air, through which the emerging moth can easily push its way. The late Edward Newman, in his history of British moths, stated that the leopard caterpillar rarely feeds in trees to such an excess as to destroy them, and added that he had noticed infected trees which were producing more fruit than those quite sound. Such a view would tend to remove the species from the list of the enemies of the Pear. But although this gentleman was a careful observer, general experience is against his theories; for if it may occasionally happen that a tree only slightly touched by these caterpillars yields well, ere long their persistent attacks exhaust its strength, and it shows sign of decline. Again, if the caterpillars do not kill a tree in which they are numerous

Fig. 97.—*Zeuzera aesculi*.

their many burrows in the trunk or branches render the tree liable to suffer from the force of high winds.

It has been recommended to thrust into such holes as are visible bent wires, by which some of the caterpillars may probably be killed, or paraffin might be injected by the assistance of a sharp-nozzled syringe, which liquid will destroy caterpillars should it reach them, and also render the wood disagreeable to them. If any objection exist to the employment of paraffin, either tobacco water or a solution of softsoap might be used with about equal benefit, and some have tried blowing the fumes of tobacco or of sulphur into the holes. Of course all moths seen should be secured.

We proceed to notice next a moth much smaller, and which has a superficial resemblance to the insects of the fly tribe. It is called the Red-belted Clearwing, *Sesia myopaformis*. The moth has transparent wings, black-tipped, and barred with black. The thorax and body are black; round the latter is a bright red belt. It is usually out in June or July, when the eggs are laid upon the Apple and Pear. The trunks of Pears are usually attacked, but the smaller branches of Apples. Though the eggs are mostly distributed, a party of caterpillars are sometimes to be found crowded in a small block of wood. It is seldom, however, that they endanger the life of the trees in which they are bred. It should be added that this caterpillar is nearly colourless; the head is horny, and the body, though slight, is very muscular. It is to be noticed feeding the greater part of the year, but probably becomes partly torpid during very cold weather. In their season of flight the moths should be caught with a small gauze net, where it is wished to prevent the multiplication of the species.

There is a weevil, *Rhynchites alliarie* by name, which, however, does, so far as the evilence before me goes, not much mischief in Britain, though a great deal on the Continent, that has also been called the "stem-borer," from the plan pursued by the female insect. It visits nearly every species of fruit tree, and the Pear is not unfrequently chosen to furnish food for the larva or grub. The emergence of the mature beetle takes place in the summer. This little creature, hardly the sixth of an inch in length, is of a steely-blue or a bluish-green colour, armed with jaws remarkably trenchant. Intent upon her work of oviposition, the female searches amongst the young shoots till she perceives

one that is suitable, upon which she settles, and deposits an egg within an incision or small chamber which she forms. This done, she passes a short distance along the shoot, and by dint of perseverance cuts it off and pushes it to the ground. Sometimes she follows it and deposits a second egg thereupon. She is thus occupied for a week or two visiting a succession of shoots until all her eggs are laid. When the grub is full grown it quits the shoot and enters the earth to become a chrysalis. It is therefore evident that when this beetle is suspected to be in an orchard fragments of shoots lying on the ground ought to be picked up and burnt, and some advise spreading sheets under the trees just when the beetles are busy, into which they may be shaken, and many other insects also injurious.—ENTOMOLOGIST.

EXOTIC PLANTS IN CORNWALL.

THE number of exotic plants, in addition to those named on page 384, which are at home in the open air in Cornwall, is very large and varied, so that scarcely any approximate number can be satisfactorily given. Those which thrive well in one district will scarcely grow in another, although the temperature of both districts may be much the same. The reason can only be assigned to soil and altitude. The various modes of culture (or non-culture) employed by different growers have perhaps a greater influence, one way or another, than most persons are aware of. A great number of exotic plants thrive only in situations where they are allowed to remain for years undisturbed, whereas others require to be taken up and replanted annually. It is by observing such important facts in plant-culture, and which are so often ignored, that success is to be obtained.

Few half-hardy plants are more extensively employed than the ornamental *Escallonia macrantha*. One of its chief uses is as a hedge shrub at Sill, where protection from winds is absolutely needed. It seems to withstand any storm, and for such a purpose it has an excellent companion in the common *Euonymus*. Both are planted when young, and from about 6 inches to 1 foot in height; they rapidly form very excellent fences, and bear cutting well. I prefer the more decided and deeper scarlet flowers of *Escallonia Ingrami*, but this species usually grows to a larger state, and is not nearly so convenient a plant to grow as the commoner one. There is a species of *Escallonia* which is very much neglected and rarely seen in gardens; it is *E. montevidensis*. It has a somewhat scandent habit, and is one of the most admirable of plants for growing against a sunny, but rather sheltered, wall; it makes a somewhat irregular growth, and its pure white flowers are borne in large pendant panicles.

Aralias bear even a moderately severe frost without being at all seriously injured. *A. papyrifera* is one of the best; it is a very handsome plant, and often grows 6 feet in height, and has its five or seven-lobed leaves a foot in length. The decorative value of this fine species is greatly enhanced when its large drooping panicles are produced. Although this species was first cultivated as a greenhouse plant when introduced into this country, it is now generally regarded as hardy. Another handsome species, with large digitate deep shining green leaves, is *A. Sieboldii*; this I have found quite hardy even in Somersetshire, but farther north it requires greenhouse protection during the winter months. *A. trifoliata* is also hardy in Cornwall.

Three species of those curious little shrubby plants, the *Colletias*, are hardy—viz., *C. cruciata*, *C. horrida*, and *C. racemosa*, although both grow very slowly; and only one, *C. horrida*, has flowered among those I have seen. *Convolvulus Cneorum*, with its silvery-white broadly lanceolate leaves and terminal clusters of pale rose flowers, which are hairy on the outside, thrives admirably within a few feet of the sea at St. Michael's Mount, and produces blooms in the early part of spring. Two other most desirable plants which thrive best in well-drained soil are *Eugenia myrtifolia* and *E. Ugni*, the small fruits of the latter being very pleasant to the taste. *Fuchsias*, such as *cordifolia*, *microphylla*, *procumbens*, and *splendens*, in addition to many hybrids, are kept in the open all through mild winters, and apparently form sturdier plants than when confined to a greenhouse. These remarks apply with equal truth to the bedding *Pelargoniums*, and both must be protected from excessive rains. Amongst the many tropical plants grown without success, few are more striking than the gigantic *Musa Ensete*; it survived six winters almost wholly unhurt, but ultimately succumbed. It was in the gardens of E. Bolitho, Esq., at Trewilden, about four miles west of Penzance, and was a well-grown plant several feet in height when transferred to the open air from the conservatory. *Hedychium Gardnerianum* has proved thoroughly acclimatised in various parts of the county, but the handsome yellow-flowered species, *H. flavum*, is not so well known, although equally desirable, and would no doubt prove hardy enough in a light well-drained soil in districts other than Penzance and Sill.

It would be difficult to enumerate all of what are generally considered as stove plants which will be found hardy, or nearly hardy, in the west of England. I believe that I have named the more striking examples, or those calling for special mention. The list, however, would be incomplete if the following names were omitted:—*Abutilons* *Boule de Neige*, *megapotamicum*, *vitifolium*, and *voxillarum*; *Ammobium alatum*, *Benthamia fragifera*; *Banksias* *grandis*, *integrifolia*, and *littoralis* (killed); *Bougainvillea glabra*, *Clianthus puniceus*; *Correas* *alba*, *carnea*, *cardinalis*, and *virens* (mostly severely damaged); *Cassia corymbosa*, *Coprosma Baneriana*, *Ceanothus*, *Chorozema macrophylla* (killed or severely damaged), *Daphne indica* and its varieties, *Edwardsia grandiflora*, *Gasterias*

glabra and nigrescens (killed); Hakeas prostrata and suaveolens (severely damaged); Habrothamnus elegans and fasciculatus; Leptospermum bracteatum (killed or nearly so); Olearias dentata, Haastii, and stellata; Polygalas Dalmaisiana, intermedia, and oppositifolia; Primulas verticillata (killed), japonica, and Palinuri; Phormiums atropurpureum, tenax, and tenax Veitchii; Pittospermum eugenioides, Rocheas falcata and perfoliata (killed); Sparmannia africana and Plumbago capensis (killed); Sedums arboreum (nearly killed), albicans and aureum; and Seaforthia elegans (much damaged). This list is far from exhaustive, but it will serve to show how exceedingly rich the gardens of Cornwall collectively are in tropical, semi-tropical, and other exotic plants. I have good reason to believe that a great number of plants usually supposed to be lost to cultivation would be detected by a competent botanist at Tresco, Scilly.—WILLIAM ROBERTS.

A CARNIVOROUS PLANT.

AN interesting discovery has been made during the last week by Mr. G. E. Simms, son of a well-known tradesman of Oxford. It is that the bladder-traps of *Utricularia vulgaris* are capable of catching newly hatched fish and killing them. Mr. Simms brought to me for examination a specimen of *Utricularia* in a glass vessel, in which were numerous young roach newly hatched from a mass of spawn lying at the bottom. Numbers of these young fish were seen dead, held fast in the jaws of the bladder traps of the plant. I had never seen *Utricularia* before, and am indebted to my colleague Prof. Burdon Sanderson for the identification of the plant and a reference to Cohn's researches on it. Mr. Simms supplied me with a fresh specimen of *Utricularia* in a vessel with fresh young fish and spawn, and in about six hours more than a dozen of the fish were found entrapped. Most are caught by the head, and when this is the case the head is usually pushed as far into the bladder as possible till the snout touches its hinder wall. The two dark black eyes of the fish then show out conspicuously through the wall of the bladder. Rarely a specimen is seen caught only by the tip of the snout. By no means a few of the fish are, however, captured by the tail, which is swallowed, so to speak, to a greater or less distance, and I have one specimen in which the fish is caught by the yolk sac. Three or four instances were observed in which a fish had its head swallowed by one bladder-trap, and its tail by another adjacent one, the body of the fish forming a connecting bar between the two bladders.

I have not been able to see a fish in the actual process of being trapped, nor to find one recently caught, and showing by motion of the fore part of its body signs of life. All those trapped were found already dead, but I have had no opportunity of prolonged observation; and it will be remembered that Mr. Darwin, in his account of the trapping of Crustacea, worms, &c., by *Utricularia*, states that he was not able to observe the actual occurrence of the trapping of an animal, although Mrs. Treat of New Jersey often did so. I think it probable that the fact described by Mr. Darwin, and which is easily verified, that the longer of the two pairs of projections composing the quadrifid processes by which the bladders of *Utricularia* are lined "project obliquely inwards and towards the posterior end of the bladder," has something to do with mechanism by which the small fish become so deeply swallowed, so to speak. The oblique processes, set all towards the hinder end of the bladder, look as if they must act together with the spring valves of the mouth of the bladder in utilising each fresh struggle of the captive for the purpose of pushing it further and further inwards. On cutting open longitudinally some of the bladders containing the heads and fore parts of the bodies of fish, and examining their contents, I found the tissues of the fish in a more or less slimy deliquescent condition, no doubt from decomposition, for Mr. Darwin failed to detect any digestive process in *Utricularia*. The quadrifid processes were bathed in the slimy semi-fluid animal substance, and the processes themselves appeared to contain abundance of fine granular matter, possibly the result of absorption, but the large quantity of surrounding animal matter present rendered the observation uncertain. The usual swarms of Infusoria were present in the decomposing matter.

Specimens of the *Utricularia* with the little fish fast in the bladder-trap, and their heads or tails hanging out, can be well preserved in spirits, and show the conditions well, notwithstanding that the plant becomes colourless, and there is no longer the marked contrast between the glistening white dead fish and the green bladders, which in the fresh condition renders the combination of the trap and prey conspicuous.

Mr. Simms, by whose permission I write this, intends shortly to publish an account of his observations himself. I have advised him to endeavour to prepare spirit specimens of *Utricularia* plants with numerous trapped fish *in situ* for sale to those interested in the matter who may care to apply for them. His address is 37, Broad Street, Oxford.—H. N. MOSELEY (in *Nature*).

IRIS SUSIANA.

THOUGH less brightly coloured than many members of the Iris family, the "Great Turkie Flower de Luce," as this plant was termed by the old writers, is one of the most peculiar and striking of all our garden flowers. When in a suitable situation, rather warm, sheltered, and free from stagnant moisture, the plant grows strongly, reaching a height of 2½ feet, and flowers freely in the early summer months, producing a strange effect in the border. The flowers are of great size, resembling *I. iberica* in form, the ground colour being of a dull grey, upon which are a number of purple markings, which singular contrast has obtained for it the name of the "Mourning Iris." It was well known to Parkinson, who thus describes the plant—"It hath divers heads of long and broad fresh greene leaves folded within one another at the bottome, as all other of the Flower de luces are. From the middle of some one of these heads riseth up a round stiffe stalke two foote high, at the top whereof standeth one

flower, the largest almost but the rarest of all the rest, consisting of nine leaves, but of the colour of a snake's skinne it is so diversely spotted." It was introduced to this country towards the close of the sixteenth century from Persia, the specific name being derived from a city in that country. Some of the old writers state that if the standards of this species are placed in water they produce a fine violet colour; and one adds—"But if a little Allome be put therin, and then wrung and pressed, and the juice of these leaves dried in the shadow, will give a colour almost as deep as indico, and may serve for shadowes in limming excellent well."

CRYSTAL PALACE SHOW.

MAY 23RD AND 24TH.

AN innovation was made at the Crystal Palace last week in arranging the plants. On all former occasions they have been grouped in the transept, and consequently dwarfed in comparison with the magnitude of the building. Under such circumstances it was impossible to display them to advantage, and also the heat and glare in bright weather so exhausting to the flowers that many of them have often lost their freshness almost before the judging was completed. The Show to be noticed, which was unanimously considered the finest that has ever been seen at the Palace, was held in a series of marquees at the extreme end of and outside the building next the aquarium, and so satisfactory was the result that the Directors of the Palace and Mr. Head, the Garden Superintendent, merit hearty congratulations. If it should be possible in the future to find space that can be covered by one monster marquee, and arrange the plants in it in gardenesque style, the attraction would be irresistible, and inhabitants of the metropolis would come in their thousands to enjoy so rich a floral feast. The arrangement of the large tent on the present occasion was so excellent, and the effect so imposing, that it is clear that not only will liberal prizes bring out splendid plants, but that there is no lack of taste to dispose them effectively if adequate means can be provided. We shall hope, too, an extension of accommodation on the lines indicated, and to have the pleasure of inspecting a magnificent exhibition at the Palace similar in character to the world-famed spectacles that are periodically arranged in Ghent and Brussels. The Exhibition of last Friday and Saturday was undoubtedly marred by the sectional method of arrangement, and by the obtrusive stages in some of the tents. These want practically sweeping away, tabling only being required to a limited extent for certain small plants, while the too long endured custom of elevating large ones ought to have received its death blow by the admirable result of grouping the elephantine specimens in depressions in the lawn, where the pots were practically invisible, and the plants were seen to such great advantage.

STOVE AND GREENHOUSE PLANTS.—Prominent in the first spacious marquee were the magnificent stove and greenhouse plants entered in the competition for nine specimens. Mr. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, was the champion with a selection from the specimens of those which two days previously had gained him the premier position in a similar class at Regent's Park. Especially notable was the Veitch Memorial prize plant of *Hedera tulipifera*, which was greatly admired, and is indeed a marvellous example of good culture and careful training. All the plants were large, most of them 5 to 6 feet high and as much in diameter, and splendidly flowered, particularly *Tremandra ericaefolia*, *Erica Cavendishiana*, *Erica affinis*, *Ixora coccinea*, *Anthurium Schertzerianum*, *Ixora Dixiana*, and *Statice profusa*, the *Statice* and *Tremandra* being in most praiseworthy condition, and loaded with flowers. Mr. H. James, Castle Nursery, Lower Norwood, followed very closely with smaller, but remarkably fresh healthy specimens, including *Erica depressa*, very handsome *E. Cavendishiana*, *Azalea Model*, *Anthurium Schertzerianum*, and *Genetyllis hookeri*. Mr. E. Tudgey, Waltham Cross, took the third position, his best specimens being *Erica Cavendishiana*, 7 feet in diameter; *Pimelea decussata*, and *Erica coccinea*, 5 feet in diameter, and beautifully flowered. Amongst the amateurs Mr. Chapman was again first with six specimens equally as beautiful as the others, though on a smaller scale. *Acrophyllum venosum* was admirably flowered; *Aphelexis macrantha purpurea*, very healthy and evenly trained; *Ixora regina*, *Erica Cavendishiana*, *Anthurium Schertzerianum*, and *Tremandra ericaefolia* were also praiseworthy. Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, was a close second with well-grown plants, *Erica depressa* being one of the best in the collection. For a single specimen stove plant in flower Mr. Wakeham, gardener to H. Barrett, Esq., North Dulwich, was awarded the chief prize, his specimen being a beautiful example of *Clerodendron Balfourianum*, 5 feet high and 4 feet across, of globular form, well furnished with flowers. An extra first prize was also accorded to Mr. James for a vigorous plant of *Anthurium Andreanum*, bearing nine large brightly coloured spathe. Mr. Tudgey, who was second, showed a very good *Clerodendron Balfourianum* but slightly inferior to Mr. Wakeham's specimen. In the corresponding class for one specimen greenhouse plant Mr. Rann secured first honours with *Hedera tulipifera*, 4 feet high and the same in diameter, most symmetrical, and in perfect health. Mr. Tudgey was a good second with *Erica ventricosa magnifica*, nearly as large as the preceding, and flowering profusely. Mr. Chapman was placed third with *Erica profusa*, neat and free.

AZALEAS.—These contributed greatly to the beauty of the Show, as, though they were not remarkably abundant, the specimens were with one exception grandly flowered. The chief class was that for nine specimens, in which Mr. C. Turner, Slough, secured premier honours with beautiful plants of moderate size, 4 to 5 feet high, pyramidal in form but not too rigidly trained, and with the richly coloured flowers was to be seen a little fresh green foliage that rendered the plants much more pleasing to many visitors than the masses of flowers which by some are regarded as the beau ideal of Azalea culture. The best of the varieties were Duc de Nassau, Ferdinand Kegeljan, Madame Cannart d'Hamale, Reine des Fleurs, Chelsoni, Comtesse de Flandres, and Stella. Mr. Child, gardener to W. J. Bell, Esq., Garbrand Hall, Ewell, was a good second, some of his specimens being much larger than the preceding and superbly flowered, but the collection generally was



Fig. 98.—IRIS SUSIANA.

less even. Duc de Nassau, 5 feet high and as much in diameter, was very handsome; Concinnum and Flag of Truce were also very notable for their freshness. The same exhibitor was adjudged the first prize in the class for six specimens, showing smaller but well-grown examples; Iveryana 4 feet in height being one of the largest and most imposing. Sir Charles Napier, Reine des Pays Bas, and Duchesse de Caylus were also worthy of mention. Only two collections of eighteen Azaleas were staged, Mr. C. Turner taking the lead with neat, compact, globular specimens laden with flowers mostly large and clearly or brilliantly coloured. Particularly notable were Phœbus, Roi d'Hollande, Cordon Bleu, Reine de Portugal, Apollo, Princess Louise, and Duc de Nassau. Mr. James followed with fairly good plants.

Ericas were not shown very numerous, Mr. E. Tudgey securing the first prize for nine plants with comparative ease, as the only collection entered against him was disqualified for including two plants of *Erica Cavendishiana*, one being named *affinis*, and one of the plants was in a smaller pot than the size stipulated—viz., 12-inch. The Waltham Cross Ericas were very neat and excellently flowered, well deserving their position. The chief forms represented were *E. depressa*, *E. grandiflora*, *E. affinis*, *E. Wilsoni*, *E. ventricosa magnifica*, *E. eximia superba*, *E. Cavendishiana*, and *E. tricolor*. In the amateurs' class for six plants there was no competition.

Though but one collection of Clematises was entered, these had a fine effect in one of the dells of the large marquee, and contrasted most strikingly with the more brilliant Azaleas and stove or greenhouse plants. Messrs. G. Jackman & Son, Woking, were the exhibitors of the twelve specimens for which the leading prize was awarded, and though the plants were principally the same as those exhibited at the Regent's Park Show two days before, they appeared equally fresh and beautiful. The flowers were so large, so evenly disposed over the plants, and of such varied and rich shades of mauve, lilac, purple, and blue, diversified with white and striped flowers, that they attracted much admiration from the visitors.

FINE-FOLIAGE PLANTS.—No exhibition is complete or pleasing without a due proportion of fine-foliage plants, and therefore careful provision was made for them in the Crystal Palace schedule. The most important class was that for nine specimens, in which three close and admirable collections were entered. Mr. C. Rann deservedly won the premier position with even, vigorous, and handsome specimens, comprising a superb plant of *Bonaparteia stricta*, 4 feet high, in perfect health; *Cycas revoluta*, large and vigorous; *Croton Hendersonii*, 6 feet high; *Cycas circinalis* of wonderful size, 12 feet high and in excellent condition; *Spathiphyllum pictum*, finely variegated; *Pandanus Veitchii*, *Dasyllirion acrotrichum*, *Croton undulatus*, and *C. interruptus*. The second prize was adjudged to Mr. Penfold, gardener to the Rev. Canon Bridges, Beddington House, for a collection but slightly inferior to the preceding, and comprising most praiseworthy plants of *Phyllanthus nivosus*, beautifully variegated; *Spathiphyllum pictum*, which is becoming a favourite exhibition plant; *Anthurium regale*, *Dieffenbachia Chelsoni*, and *Carludovica Drudei* 8 feet high. Mr. James was third, also with fresh and healthy plants, one of his best being *Anthurium regale*. A trio of good collections were also entered in the class for six, Mr. Penfold winning first honours for beautiful examples of *Anthurium crystallinum*, *Alocasia macrorrhiza variegata*, *Dieffenbachia Bausei*, and *Thrinax elegans* amongst others. Mr. Rann took the second place, having a gigantic *Areca sapida*, a good *Bonaparteia stricta*, and a large *Phoenix reclinata*; Mr. King, gardener to P. Crowley, Esq., Waddon House, Croydon, being third with well-grown plants, including a large *Asparagus tenuissimus*. The best single specimen was an enormous *Lantana borbonica* from Mr. Rann; this was 8 or 9 feet high, and fully as much across the head. The second was *Areca lutescens*, with four stems 9 feet high from Mr. James; and the third *Pritchardia magnifica*, 8 feet high, from Mr. Tudgey.

FERNS.—Like the preceding, these were represented by some creditable collections, Mr. Penfold taking the lead amongst the three competitors in the class for nine specimens with plants of moderate size, but in excellent health and as fresh as could be desired. *Davallia polyantha*, for instance, is rarely seen at exhibitions in such fine condition, the fronds being of an intensely rich dark green colour, and the plant fully 7 feet in diameter. *Adiantum peruvianum* 4 feet in diameter, *A. cardiochlaena*, *Todea superba*, *Polypodium Billardieri*, and *Davallia Mooreana* 5 feet across were other noteworthy plants in this contribution. Mr. J. Wakeham, gardener to H. Barrett, Esq., North Dulwich, and Mr. James, followed with smaller Ferns, but similarly healthy. There was no competition in the class for six Ferns, Mr. Penfold securing the premier prize with plants that well merited the honour.

DRACÆNAS.—Entries were good in both the classes for *Dracænas*, and the plants generally were well grown. It is to be regretted, however, that in one or two instances there was evidence of attempts to give the leaves a glossy appearance, which cannot be too strongly condemned. Mr. James staged the best nine plants 3 to 6 feet high, well clothed with foliage to the base, and richly coloured. The leading varieties were *Shepherdii*, *Gladstonei*, *Cooperi*, *Regina*, *Mooreana*, *Goldiana*, and *elegantissima*. Mr. Bird, gardener to J. A. Causton, Esq., Allyn Park, Dulwich, was second with sturdy healthy specimens, and Mr. Rann followed with smaller but well-coloured plants. For six specimens Mr. King was worthily first, having very neat and fresh plants 3 to 4 feet high, and most satisfactorily coloured. The varieties were *Gladstonei*, *Vivicans*, *Goldiana*, *Anerleyensis*, *Majestics*, and *Baptisti*. Mr. Wakeham was second with smaller but very compact plants, Mr. Bird taking the third place.

CROTONS.—Though less numerous than the *Dracænas*, these held a prominent position in the Show, and several particularly highly coloured plants were staged. Mr. Bird contributed the premier nine specimens, large and handsome examples of some of the best varieties in cultivation. Several of the plants were 6 feet high and furnished with foliage to the base. Especially fine were *Andreanus*, *Disraeli*, *Weismanni*, *Sunset*, *Nobilis*, *Evansianus*, *Prince of Wales*, and *Queen Victoria*. Mr. James was awarded the third prize for a rather irregular collection, the only first-rate plant being *C. Andreanus*. In the amateurs' class for six, three competitors entered, but there was much difference in the respective merits of the plants, some being old, large, and bare, others much smaller but well coloured. Giving preference to the latter, the Judges placed Mr. Penfold first, his neat little plants comprising *elegantissimus*, *variegatus*, *Queen Victoria*, *Johannis*, and *Weismanni* in beautiful condition. The other prizes were secured by Messrs. Bird and Wakeham.

CALADIUMS were represented by three or four collections of well-coloured healthy plants. Messrs. Laing & Co., Forest Hill, were first with nine specimens, the chief varieties being *Album luteum*, *Luddemanni*, *Madame Hunnebell*, and *Sanchoniathon*. This was the only collection in the open class; but in the amateurs' division there were three competitors, Mr. James Sharpe, gardener to F. Hatchett, Esq., Grove Park, Sydenham, S.E., winning premier honours for beautiful examples of *Meyerbeer*, *Chantini*, *bicolor splendens*, and *Albert Edward*. Mr. Collins, gardener to J. Anderson Rose, Esq., Wandsworth Common, and Mr. W. King, were second and third with smaller plants.

CALCEOLARIAS.—Very rarely is such an extensive display of *Calceolarias* seen at a London show as that at the Crystal Palace last week, and the exhibits proved in the most convincing manner that these handsome greenhouse and conservatory plants have been greatly improved in recent years in a popular point of view. Much difference was, however, manifest in the exhibits, and some diversity of opinion occurred respecting their several merits. The Judges, however, pronounced in favour of the best grown plants, and gave Mr. Ford, gardener to C. J. Leaf, Esq., Pain's Hill, Cobham, the first prize for eighteen plants, wonderful examples of dwarf bushy specimens 2 to 3 feet in diameter, with sturdy healthy foliage and abundant flowers. In comparison with others shown the flowers were not of high quality and were too low on the foliage. Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, followed with smaller plants, but bearing good heads of the finest-marked and best-coloured flowers of all those exhibited. Mr. James, Woodside, Slough, was third with still smaller plants bearing exceedingly richly coloured blooms, and an extra prize was awarded to Messrs. J. Carter & Co., High Holborn, for good plants and varieties. In the class for twelve plants the awards were similar, Mr. Ford taking the first prize with bushy plants; Mr. Salter was second, and Mr. Griffin, gardener to G. F. Coulson, Esq., Farnside, Sydenham Hill, was third.

Messrs. Wakeham, Laing, and Bird showed *Gloxinias* well and took the prizes in that order, the plants being freely flowered, the blooms large and richly coloured.

ORCHIDS.—The contributions in these classes included some plants of great interest and beauty, and could they have been massed together in one tent they would have produced a grand effect. The most important class was that for a group of Orchids, in which there were two entries, Mr. James taking first honours for a highly tasteful arrangement of Ferns, Palms, and numerous Orchids, neatly edged with *Adiantum cuneatum*. Mr. Salter was adjudged the second prize for a very choice collection, comprising many handsome plants, but there was scarcely sufficient foliage to relieve the numerous brightly coloured flowers. In the open class for nine Orchids Mr. James was again the most successful exhibitor with fine specimens, including *Oncidium Marshallianum* with a grand panicle 5 feet high; *Lælia purpurata*, with ten flowers; *Odontoglossum vexillarium*, profusely flowered, of a rich colour; *Cattleya Mendelli*, with fifteen flowers, and several other equally noteworthy plants. Mr. Child followed with finely grown plants. Three admirable collections of six plants were entered, Mr. Salter being adjudged first honours for some very choice specimens. *Dendrobium Wardianum* had twelve well-flowered growths, *D. Jamesianum* fifty to sixty flowers, *Cymbidium Lowianum* two spikes of thirteen and nineteen flowers, and *Odontoglossum citrosum roseum* had seven fine spikes. Mr. Child was second, his best plants being *Aerides Fieldingii floribunda*, with three spikes of twelve branches; *Vanda suavis*, *Oncidium ampliatum majus* with seven spikes; and *Lælia purpurata pallida* with eleven flowers. Mr. W. King was a close third, and in the opinion of some his plants deserved a higher place. *Odontoglossum cirrhosum*, with six spikes, was very handsome; *Oncidium sphacelatum* had six fine panicles; *Dendrobium chrysotoxum* had seventeen spikes; but the most surprising plant was *Sophranitis grandiflora*, with three dozen flowers of excellent colour, one the finest specimen ever exhibited. For a single specimen Mr. James was first with *Dendrobium nobile*, 5 feet across and profusely flowered. Mr. Salter followed with *Cymbidium Lowianum*, bearing a spike of eighteen deeply coloured flowers; and Mr. Child was third with a handsome well-grown *Vanda*, but with the flowers rather past their best.

GROUPS.—The competition in the class for a group of plants arranged in a space not exceeding 200 square feet was confined to two exhibitors—namely, Messrs. Laing & Co. and Messrs. Hooper & Co., who were adjudged the prizes in that order. The first-named had a very pretty group most lightly and tastefully arranged, *Tuberous Begonias* and *Gloxinias* contributing the principal colours, *Caladiums*, Ferns, and Palms being also freely employed, and the margin consisted of *Selaginellas*. Messrs. Hooper & Co.'s group was bright and graceful with *Pelargoniums*, *Azaleas*, *Begonias*, *Torenia*s, *Crotons*, *Dracænas*, and Palms, the margin of *Torenia*s and *Isolepis* having a most pleasing effect.

PELARGONIUMS.—The principal entries in the two leading open classes for these were from Slough, Mr. C. Turner taking first with nine Show and the same number of Fancy varieties. The Show varieties were beautiful plants, 3 to 4 feet across, and evenly flowered, such sorts as *Fortitude*, *Comtesse de Choiseul*, *Mountain of Light*, *Kingston Beauty*, and *Duchess of Edinburgh* being especially fine. The best of the Fancy varieties were *Ellen Beck*, *Roi des Fantaisies*, *Fanny Gair*, and *Princess Teck*. Mr. Wiggins took the third prize in this class with small plants. In the corresponding amateurs' classes for six plants Mr. Little, Hillingdon Place, Uxbridge, was also first both with Show and Fancy varieties, the plants being healthy and freely flowered. Mr. Wiggins followed in each class with smaller plants. For eighteen decorative *Pelargoniums* Mr. Little was again the premier, staging a beautiful collection of plants representing some of the best varieties for general cultivation. Very notable were *Duke of Edinburgh*, *Mauve Queen*, *Madame Thibaut*, *Sunbeam*, *Dr. Driamond*, *E. J. Perkins*, *Triomphe de St. Mandé*, *Lady Isabel*, and *Aurora*. Mr. C. Turner was a close second, and Mr. R. Wells, Sydenham, followed, each showing a selection of varieties.

NEPENTHES AND SARRACENIAS.—Mr. B. S. Williams and Mr. James were the only exhibitors of these plants, the former taking the lead with a choice collection of *Sarracénias*, well grown and including the following:—*Mitchelliana*, *purpurea*, *Tolliana*, *Chelsoni*, *flava maxima*, and *Drummondii*. Mr. James had the best *Nepenthes*, eighteen superb plants of great size and bearing numbers of large handsome pitchers. *Dominiana*, *Hookeri*, and

Mastersiana were uncommonly fine. Mr. Williams had smaller plants, but representing a greater number of the newer choice varieties and hybrids.

ROSES.—Two charming groups of eighteen Roses were contributed. Mr. C. Turner scoring a success with beautiful healthy little bushes, the foliage fresh and vigorous in the extreme; the flowers large without being coarse, and highly coloured. Madame Lacharme, Camille Bernardin, Sir Garnet Wolseley, Mons. E. Y. Teas, Celine Forestier, and Edouard Morren were the most attractive plants. Messrs. Paul & Son, Cheshunt, were a very close second, their plants being equally healthy and with handsome blooms.

TABLE PLANTS.—Competition was keen in the class for eighteen table plants, four collections being entered and extremely close in merit—so close, indeed, that some varied opinions were expressed regarding the awards. Messrs. Hooper & Co. were adjudged the leading position, their plants being very neat and extremely healthy, but included too many with broad leaves to please some tastes. *Dracæna Goldiana*, for instance, would not be tolerated by some persons. Several of the plants were, however, well selected, such as *Croton Weismanni*, *Geonoma gracilis*, *Aralia Veitchii*, and *Cocos Weddelliana*. Messrs. Laing & Co. were placed second with similar plants, very neat and healthy; and Mr. B. S. Williams was third with elegant *Aralias*, *Asparagus plumosus*, *Eulalia japonica variegata*, and others of a similar character. In the opinion of many persons these plants were the most fitted for table decoration of all those shown.

TABLE DECORATIONS.—Some extremely tasteful arrangements of flowers were entered in the class for three vases for a dinner table; Miss Cross, 6, Oxford Terrace, Addiscombe Road, Croydon, being honoured with the chief award for three very graceful stands, each with three branches, lightly filled with *Rhodanthes*, *Centaureas*, *Spiræas*, and *Grasses*, with a base of *Carnations*, *Dipladenias*, and *Pelargoniums*. Mr. J. Chard, Clapham Common, was a close second, having tall stands, somewhat similarly filled to the above, but not quite so light. Mr. Butcher, South Norwood, was third with smaller but neat stands. For one epergne or vase for the drawing-room, Mr. Chard; Mr. J. Lambert, gardener to H. W. Segeleke, Esq., Herne Hill; and Mr. Butcher were the prizetakers in that order. Bouquets and buttonholes were numerous and tasteful, Messrs. C. Hepburn, Chard, Butcher, and Hill being the chief prizetakers.

Messrs. Sutton & Sons, Reading, offered three prizes for a brace of Cucumbers, and several good samples were staged. Mr. C. J. Waite, The Gardens, Glanhurst, Esher, was first with Purley Park Hero, very even and good. Mr. Kendall, Templeton Gardens, Roebampton, followed closely with Model; and Mr. Osman, Sutton, Surrey, was third with Improved Telegraph.

MISCELLANEOUS.—The most imposing group amongst the non-competing exhibits were the Roses from Messrs. G. Paul & Son, Cheshunt, which formed a magnificent bank in the large tent. These comprised the grand specimens of Charles Lawson, Beauty of Waltham, Anna Alexiëff, Edouard Morren, Celine Forestier, Centifolia Rosea, and Comte de Serenye, which have attracted so many admirers at the exhibitions of recent years. An extra prize was awarded for this group, also to the following exhibitors:—Mr. C. J. Salter for four superb plants of *Utricularia montana* with hundreds of flowers, and a group of handsome *Calceolarias*; to Mr. C. Turner for a collection of choice *Azaleas*; to Mr. B. S. Williams for a group of new plants; to Messrs. Carter & Co. for a group of *Calceolarias*; to Mr. Bird for a group of *Crotons*; to Messrs. Laing & Co. for a collection of miscellaneous plants; and to Mr. Chard for baskets of flowers, wreaths of flowers, and floral designs for the table; and to Messrs. Hooper & Co. for collections of *Pæonies*, *Lilies*, and *Irises*.

First-class certificates were awarded for the following plants:—To Mr. B. S. Williams for *Nepenthes Mastersiana*, *Dracæna Lindenii*, *Aralia Kerchoveana*, and *Sarracenia Tollyana*, *Mitchelliana*, *Fildesii*, and *Cypripedium ciliolare*, which have been previously described; to Messrs. J. Laing & Co. for *Caladium Comtesse de Condeixa*, *L'Aurore*, and *Tuberous Begonias Her Majesty*, Mrs. Weekes, Lord Chesterfield, Lady Chesterfield, Distinction, Apricot, Hercules, Mrs. Brissenden, and *Croton gracillimus*.

ROYAL HORTICULTURAL SOCIETY.

FRUIT AND VEGETABLE SHOW.—MAY 27TH.

THE combined attractions of the Fruit and Vegetable Show, and the groups of new and choice plants and flowers submitted to the inspection of the Floral Committee, rendered this meeting one of the most interesting that has been held this year, and it is reasonably expected that the subsequent monthly shows will be of still greater importance and interest.

The first of the series of Exhibitions announced for the present season, to be held by the Royal Horticultural Society in connection with the Health Exhibition, took place on Tuesday last; and though the entries were less numerous in some of the classes than had been expected, the vegetables were all that could be desired, and formed a most interesting feature. This first Show was evidently rather too early for the majority of fruit-growers, and a keener competition may be looked for at the next Exhibition in June. Stages around one-half of the conservatory were devoted to the exhibits in competition, the other portion being gay with groups of flowers and plants shown before the Floral Committee. Twenty-eight classes were enumerated in the schedule, the prizes being extremely liberal in the majority, the highest being £6 for a collection of fruits, and the lowest 7s. 6d., the third prize for two Lettuces.

Collections of Fruits.—Three prizes, value £6, £4, and £3, were offered for a collection of six kinds of fruits, but there was only one exhibitor, Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, who was awarded the first prize for large handsome bunches of Foster's Seedling, which would have been better a week or two later. The Black Hamburg bunches were smaller, but of good colour; Elruge Nectarines very handsome; Stirling Castle Peaches of good colour; Golden Queen Melon very neat, and a beautiful even Queen Pine were the other dishes, and all were good, well deserving the honour they obtained.

Grapes.—The competition was close in the class for two bunches of black Grapes, seven lots being staged. Mr. W. Robins, gardener to E. O. Lee, Esq., Hartwell House, Avleshbury, taking the first position with Black Hamburg, the berries large and well finished, and the bunches of fair size. Mr. Woodbridge, gardener to the Duke of Northumberland, Syon House, Brentford,

was a good second also with Black Hamburg, a trifle less well coloured; and Mr. Fyfe, gardener to W. W. F. Dick, Esq., Thames Ditton House, was third with smaller bunches and berries of the same variety. Eight lots of white Grapes were entered, Mr. Robins gaining first honours with Foster's Seedling in fine condition, beautifully ripened, the bunches large, even, and symmetrical. Mr. Fyfe followed with the same variety, the bunches of good size, but less even and not quite so well ripened; Mr. Miles taking the third position with Buckland Sweetwater, not so ripe as might have been wished.

Strawberries.—Three classes were provided for these, but in only one was the competition at all satisfactory. This was for one dish of thirty fruits, and ten were staged, Mr. G. Thompson, Manor Wells, Croydon House, Hounslow, securing first honours with Sir Charles Napier, large and richly coloured fruits. Mr. Haines, gardener to the Earl of Radnor, Coleshill House, Highworth, followed with even examples of Sir Joseph Paxton; and Mr. Austen, The Gardens, Ashton Court, Bristol, was third with the last-named variety, rather small. For two dishes, distinct varieties, Mr. J. Vert, The Gardens, Andley End, Saffron Walden, won chief honours with James Veitch and Sir J. Paxton, both represented by fine fruits. Mr. Austen took the next place, his varieties being Sir J. Paxton and President, much smaller. Strawberries in pots were very poor, the third prize being awarded for the only collection from Mr. J. Worthing, gardener to A. Moss, Esq., Chadwell Heath, Essex; the variety was La Grosse Sucrée, but the plants were nearly destitute of foliage and the fruits were very poor.

Peaches and Nectarines.—Four dishes of six fruits were entered in the Peach class, Mr. Miles leading with Stirling Castle, large and extremely well coloured. Mr. Robins followed, showing Alexander of fair size, but rather deficient in colour; Mr. Nash, gardener to Dr. Fuller, New Shoreham, Sussex, being third with pale samples of Royal George. Nectarines were not so well represented as the preceding, as only two dishes were staged, Mr. Nash securing the premier position with Violette Hâtive, of fine colour; and Mr. Miles followed, showing Lord Napier scarcely ripe.

Cherries were represented by two dishes from Mr. Miles and Mr. T. Hare, Grantham, who were respectively first and second, the former showing very handsome fruits of Black Circassian.

Melons.—These formed a very large class, no less than twenty-one being entered, and the Judges had a rather severe trial in awarding the prizes. It was also remarked as regrettable that only one class was provided, as the result of green and scarlet-flesh varieties being in competition together must almost invariably be in the favour of the first named, and so it was in this case. Mr. Herrin, Chalfont Gardens, Gerrard's Cross, won the first prize with Chalfont Favourite, a green-flesh variety of good flavour and prettily netted. Mr. Austen was second, showing William Tillery, also a green-flesh in good condition; and Mr. Howe, The Gardens, Benham Park, took the third place with Benham Beauty, a scarlet-flesh variety, a cross between Hero of Lockinge and William I. Messrs. J. Carter & Co.'s prizes for two Melons, Captain Larks and Carter's Emerald, brought one exhibitor, Mr. W. Mead, gardener to Lord Barrington, Beckett Park, Shrivensham, who had two good fruits, Carter's Emerald being well netted.

Miscellaneous Fruits.—This class was specially provided to encourage the exhibition of foreign fruits not included in the other classes, but the response was not very hearty. Mr. Woodbridge was awarded a first prize for a collection of nineteen fruits of *Vanilla planifolia*, beautifully ripened and very fragrant. A similar award was made to Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, for an excellent collection of Apples and Pears in first-rate condition. Four dishes were staged of Uvedale's St. Germain, very large and fresh, six of Cornish Aromatic, three of Sturmer Pippin, two of Cox's Orange Pippin, one of Mannington Pearmain, and one of Annie Elizabeth. Second and third prizes were adjudged to Messrs. Austen and Howe for dishes of Figs, the former having Brunswick large and ripe, the latter good examples of Brown Turkey.

Vegetables.—A surprisingly close and beautiful display of vegetables was provided in the class for eight distinct kinds, seven competitors appearing, and their contributions were so nearly equal in merit that the Judges had much difficulty in determining their position. Mr. A. Waterman, gardener to A. Brassey, Esq., M.P., Preston Hall, Aylesford, was placed first with most praiseworthy examples of Vick's Criterion Tomatoes, Canadian Wonder Beans, Early Milan Turnips, White Italian Onions, Connover's Colossal Asparagus, Culverwell's Telegraph Peas, French Forcing Carrots, and Brown Globe Artichokes, all very even, neat, fresh, and good, but some objected to the collection on the ground that Potatoes were omitted. Mr. Miles was an extremely close second, being but a few points behind the other. His Stamfordian Tomatoes were very handsome, large, and finely coloured. Other good dishes were Tender and True Cucumbers, The Queen Onions, Early Nantes Carrots, Little Gem Peas, Veitch's Extra Early Forcing Cauliflowers, Lady Paget Potatoes, and Asparagus. Mr. Lockie, Oakley Court Gardens, Windsor, was third, showing Reading Perfection Tomatoes exceedingly fine, Queen Onions and Negro Beans being similarly noteworthy.

Asparagus.—A great show of Asparagus was made by the entries in the four classes devoted to it, and there was considerable difference in the respective merits of the exhibits. In the amateurs' class for fifty heads there were seven competitors, Messrs. Cheshire Brothers, 24, St. Botolph Street, Colchester, taking the first position with large, even, and white samples. Mr. F. A. Cole, Colchester, followed with less even specimens; and Mr. J. Stewart, gardener to H. J. Barnett, Esq., Langford Park, Maldon, was third for large and rather coarse heads. In the market growers' class for 100 heads Mr. G. R. Simpson, Plough Lane, Colchester, had the best of the four lots staged; large and handsome heads well blanched. Mr. A. J. Harwood, St. Peter's Street, Colchester, was a close second; and Mr. J. Pompart, Kew, was third with similar examples. Only two bundles of 100 heads of French growth were shown, Messrs. Webber & Co. being awarded the first prize for enormous specimens, some of the stems being 1½ inch in diameter. A class was also provided for fifty heads "grown in the most natural manner" and in the opinion of the majority these were the best of all. Eleven bundles were entered, Mr. Miles taking the first place with neat clean examples, about half the length of the stem being green. Mr. Pitt, Bury Hill, Dorking, was second with similar but smaller heads; and Mr. W. Mead was third, also with "green" Asparagus. The exhibits in these classes attracted much attention.

Cauliflowers or Broccoli.—Here, as in the Melons, it was thought that a

mistake had been committed in not having two classes instead of one, as it is scarcely fair to place these two vegetables in competition together at this time of year. Mr. R. Gilbert, Burghley House Gardens, won chief honours with Gilbert's Late Queen, very large white heads, something in the way of Cattell's Eclipse. Mr. Austen took the second place with good solid heads of Leamington, and Mr. Waterlow was third with neat examples of the Model Broccoli. Some small but beautiful Cauliflowers were unrewarded, but were much admired by several horticulturists.

Tomatoes.—Twelve dishes of these were staged each with a dozen fruits, and some of them were remarkably fine for the season. Mr. Lockie led with Reading Perfection, beautiful even fruits, of handsome rich colour. Mr. Miles was second with Stamfordian, slightly less even, but good in size and colour. Mr. Allis, gardener to Major Shuttleworth, Old Warden Park, Biggleswade, followed with fine examples of Trophy.

Lettuces.—Seven collections of two Cos and two Cabbage Lettuces were contributed; Mr. W. Allan, gardener to Lord Suffield, Gunton Park, being first with Hicks' Cos and Dutch Cabbage, both good solid white examples. Mr. Gilbert followed with Covent Garden White Cos, very fine, and a fair Cabbage Lettuce. Mr. Goldsmith, Hollenden Gardens, Tonbridge, was third with Sutton's Brown Cos and Wheeler's Tom Thumb Cabbage, neat and good.

Radishes.—A good display of these was made by four collections. Mr. G. H. Richards, Somerly Park Gardens, Ringworth, being first with White Turnip, French Breakfast, Wood's Frame, and Red Turnip, all neat even and solid. Mr. C. Waite, gardener to Colonel the Hon. W. P. Talbot, Glenhurst, Esher, was second with Sutton's White-tipped, Round Scarlet, and Wood's Early Frame. Mr. S. Haines was third with smaller examples.

Salads.—Mr. Gilbert won the chief prize for a collection of salads with a tastefully arranged tray of Cos and Cabbage Lettuces, Cucumbers, Sorrel, Mustard and Cress, Olive-shaped Radish, Spring Onions, Vick's Criterion Tomatoes, and Tarragon. Mr. Waite had some good Hathaway's Excelsior Tomatoes, but his other exhibits were much inferior to the preceding.

Cucumbers.—Thirteen pairs of Cucumbers were staged, and Mr. Lockie easily gained the first prize for exceedingly handsome fruits of Royal Windsor, even, clean, about 18 inches long, and bearing a good amount of bloom. Mr. C. Howe followed with neat examples of Challenger; and Mr. S. Haines was third with Purley Park Hero, a pretty Cucumber, which has been frequently noted before.

Mushrooms.—Two classes were provided for these, one for a dish of buttons and the other for a dish of nine fully grown specimens. Mr. W. Warren was first with the latter, beautiful samples of moderate size, and was closely followed by Mr. J. F. Barter and Mr. C. Herrin. Mr. Barter scored a similar triumph in buttons. Mr. W. Warren and Mr. J. George, 10, Victoria Road, Putney, being the other prizetakers.

Cabbages.—There was a wonderful show of these, fourteen collections being entered in the two classes. For two heads Mr. C. Osman, South Metropolitan District Schools, Sutton, was the premier exhibitor, showing compact, well-hearted specimens of Enfield Market. Mr. Goldsmith was second with Sutton's Improved, fine and solid; Mr. Waite being third for Sutton's Reading All Heart. For a collection of varieties, two heads of each, Mr. Mead was first with Webb's Imperial, Sutton's Improved Nonpareil, Cocoa Nut, Wheeler's Imperial, Early Longworth, Early Rainham, and Daniel's Defiance. Mr. J. Vert was second, showing Improved Nonpareil, Carter's Mammoth Beef-heart, Ellam's Early Dwarf, Veitch's Matchless, and Audley End First of All. Mr. Goldsmith followed, showing Cattell's Alpha, Early York, Myatt's Early, Cattell's Reliance, All Heart, and Nonpareil.

COMMITTEES.

FRUIT COMMITTEE.—Present: H. Webb, Esq., in the chair, and Messrs. J. Burnett, S. Ford, G. Goldsmith, J. C. Munstett, C. Ross, G. T. Miles, C. Silverlock, G. Bunyard, H. Howcroft, R. D. Blackmore, and J. Lee. The exhibits before this Committee were not very numerous. Mr. Barter, Lancefield Street, Harrow Road, was awarded a cultural commendation for some fine samples of Mushrooms and spawn. Mr. G. T. Miles, Wycombe Abbey Gardens, showed a dish of Chelsea Gem Peas, very neat, the height being said to be about 1 foot. Mr. Hudson, The Gardens, Gunnersbury House, showed a dish of Duck's-bill Apples, which were determined to be Winter Queening. A number of Melons were exhibited, but no definite award was made for any of them, though Benham Beauty and Mr. McIntosh's Seedling were much admired, and a desire was expressed to see them again. Mr. Howe, Benham Park Gardens, showed a scarlet-flesh Melon named Pink Perfection, a cross between Hero of Lockinge and William I. The flesh was deep, the flavour good, and it was well netted. Eclipse from the same exhibitor was described as a cross between Benham Park and William Tillery. It appeared to be a good green-flesh variety, and was beautifully netted. The fine scarlet-flesh Benham Beauty has been frequently noticed before; it was, however, on this occasion a little over-ripe. Mr. McIntosh, gardener to Capt. N. A. Reeve, Ashby Hall, Lincoln, showed a fairly good Melon, a cross between Bloxholm Hall and Hero of Lockinge; and James McIntosh, Esq., Dunecvan, Oatlands Park, also had a fine Melon named Favourite, or Improved Hero of Lockinge, the result of crossing Hero of Lockinge with Scarlet Gem. It had deep scarlet flesh of fair flavour, and appears to be a promising variety. Mr. Vert, Audley End Gardens, had a dish of Alfriston Apples, fresh and in good condition. Mr. G. M. Breese, Petworth Park Gardens, Sussex, contributed a seedling Melon from Colston Bassett crossed with Golden Gem, the skin being of a fine golden colour, slightly netted, the flesh white and deep. Mr. Gilbert, Burghley Gardens, Stamford, showed specimens of his Late Queen Broccoli, which is to be tried at Chiswick. Mr. Ford, Leonardslee, Horsham, sent examples of his Latest of All Broccoli, which was of very bad colour, quite yellow; and Mr. Eckford, Boreatton Park, Baschurch, Salop, sent heads of Eckford's May Queen Broccoli, large, clear, and white.

FLORAL COMMITTEE.—Present, Section A.—Mr. J. Fraser in the chair, and Messrs. E. Hill, J. O'Brien, J. Dominy, H. Ebbage, H. Williams, H. Herbst, and J. Hudson. Section B.—Mr. Shirley Hibberd in the chair, and Messrs. H. Bennett, W. Bealby, J. James, J. Child, H. Turner, and W. B. Kellock. The groups of plants and flowers were very handsome, especially the magnificent Clematises from Messrs. G. Jackman & Sons, Woking, for which a gold medal was awarded. These were equally as fresh as when shown at the Regent's Park and Crystal Palace Exhibitions

recently, and it need scarcely be said that they were a highly important feature in the conservatory at Kensington. Messrs. Barr & Sons, Covent Garden, also contributed an important group of hardy flowers, for which a silver Banksian medal was awarded. Mr. T. S. Ware, Tottenham, had, however, the best group of the kind, a very choice collection of the best hardy flowers, including large numbers of Pæonies and Pyrethrums, for which a silver-gilt medal was adjudged. Bronze medals were also awarded to Messrs. Kelway & Sons, Langport, for an extensive collection of single and double Pyrethrums, and to Messrs. Hooper & Co. for a large group of Pæonies.

Mr. G. W. Cummins, gardener to A. H. Smee, Esq., The Grange, Wallington, had a collection of Orchids, including a fine dark variety of *Oncidium crispum* with sixteen flowers, a beautiful variety of *Odontoglossum Alexandræ*, *Cattleya Mossiæ*, *Cattleya labiata* Roetzlii, *Masdevallia Harryana sanguinea*, and *Brassia Keiliana*. All these were in good healthy condition. The New Plant and Bulb Company, Colchester, had a group of Japanese Maples, well coloured, *Ixiolirion tataricum*, and *Cypripedium spectabile splendens*, a deeply coloured form. Pansy blooms were contributed by Messrs. H. Cannell & Sons, Swanley; Mr. Eckford; Mr. Knox, 17, Gloucester Place, Portman Square; and Mr. R. May, York, the latter having a pretty yellow variety named Golden Circle. Baron F. De Rothschild, Waddesden Manor, Aylesbury, was awarded a cultural commendation for *Odontoglossum Halli leucoglossum* with seven branching spikes, having from twenty to twenty-four flowers each. W. Vanner, Esq., Camden Wood, Chislehurst, exhibited plants of *Cattleya Mendeli marginata*, a light-coloured variety, and *Cymbidium rhodocharis* with greenish white, crimson-streaked flowers in an erect spike. Mrs. Jonas, New Road, Bedford, showed some ornamental designs on violet velvet formed of Melon seeds, arranged like beads, which were very attractive. J. Fellowes, Esq., West Bromwich, had a plant of *Masdevallia racemosa* Crossi, a peculiar variety with small bright scarlet flowers. W. Lee, Esq., Downside, Leatherhead, was awarded a cultural commendation for a plant of *Odontoglossum mulus grandiflorus* with over thirty large and deeply coloured flowers. Fine examples of *Cattleya Mossiæ alba* with pure white flowers, *Masdevallia cucullata*, *M. tridactylites*, and *M. calura*, small-flowered and curious specimens, were also shown from Downside. Messrs. J. Veitch & Sons staged a handsome collection of double Anemones, and a prettily arranged group of hardy flowers, including *Aquilegias*, *Pyrethrums*, and *Poppies*. For all the above exhibits votes of thanks were accorded; and first-class certificates were granted for the following plants:—

Mimulus moschatus Cloth of Gold (Dean).—A yellow-flowered dwarf variety previously described.

Carnation W. P. Milner (Veitch).—A handsome variety with large, full, pure white, well-formed flowers, very freely produced.

Passiflora Constance Elliott (Lucombe, Pince & Co.).—A neat flower about the size of *P. corulea*, and resembling it in form, but pure white with green stamens.

Cattleya Schröderiana (Baron Schröder and Mr. Salter).—Sepals and petals narrow, of a crimson-purple tint; the lip rich crimson, but differing slightly in the depth of colour in different specimens. It is dwarf and free.

Phaius luridus (Baron Schröder).—A peculiar and striking Orchid, with narrow sepals and petals, bronze brown; lip round, claret-purple, the tube yellow. The plant shown had five expanded flowers on a strong spike, and leaves 1 to 2 feet long.

Ivy Pelargonium Isidore Feral (Bealby).—One of the most beautiful varieties of the section yet shown, the flowers very large, full, bright pink, in a dense truss. The habit is strong but compact, and very floriferous.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Rhododendrons and Arancaria imbricata in Isle of Man.—A letter was read from Mr. Farrant of Ballamoar, describing several plants of *Rhododendrons* of Himalayan species growing in the open—e.g., *R. barbatum* Roylei, Thompsoni, Fortunei, Aucklandii niveum, &c., all remarkable for their fine growth; and a monœcious specimen of *Araucaria*, which bore three male catkins and two hundred female cones.

Wallflower epiphytic on a Black Currant.—Dr. Masters exhibited a remarkable example of a Wallflower which (probably from a seed which had fallen into a decayed spot) had grown and penetrated the pith of its host. It was referred to Mr. Murray for examination and report.

Aucubas "ringed."—Dr. Masters also exhibited specimens of *Aucuba* branches:—(1) Wholly deprived of bark for about 1½ inch. In this a considerable callus had formed on the upper edge. (2) Bark removed in two strips with a ligature across it. In this case the wound gradually healed, enclosing the cord, but produced no thickening above it. (3) Bark just scraped, with ligature as before. The bark on one side died down to the wood, and produced a callus above the string, but not on the other. (4) Bark entirely removed and bound with wet moss. Roots were produced from the upper edge, but being neglected and allowed to dry the whole branch died both above and below the wound.

Silver-leaf Disease in Pomaceæ.—Dr. Masters exhibited branches of the Sloe, the leaves of which showed the same state as is so common with Portugal Laurels, Plums, &c. No cause has yet been discovered, though it is abundant in different members of *Pomaceæ* and in different soils. It was referred to Mr. Murray for examination.

Vine Disease.—Young shoots of Vines were sent by Mr. Blackmore, and were found to be attacked by *Acari*.

Puccinia Buxi.—Mr. W. G. Smith showed specimens of this fungus, which formed pustules on the old leaves, but had scarcely begun to appear on this year's foliage. It was received from Ireland.

Lepidium Seedlings Attacked by Pythium De Barryi.—Mr. Smith described some experiments, planting some seeds in ordinary soil and others in boiled soils under a bellglass. Both came up badly attacked. Seeds steeped in solution of 1 per cent. carbolic acid were shown; some died, and but very few were attacked by the disease. This was thought to show that the spores were adherent to the testa, and not in the enviroining media; but as they were watered with ordinary and not boiled or distilled water it was suggested that the watering may have brought the spores. It was further suggested that the experiment should be repeated with that precaution.

Cones of Larch Proliferous.—Mr. Houston exhibited large branches with cones having the axis protruding. They were more abundant upon the lower branches, and only on a single tree amongst others.

Orchids Attacked by Insects.—Hon. and Rev. Mr. Boscawen showed Orchid

roots, especially of Cattleyas, attacked by grubs. A gall-like protuberance is first formed and the root grows round it. Mr. MacLachlan observed that it was the larva of a hymenopterous insect that should be parasitic, belonging to the Eurytonidæ; and that another, *Isosoma Hordei*, was regarded as destroying Wheat in America. He was disposed to think that it really attacked some other insect which was the real destroyer of the Orchid, but that such insect had not yet been found. He said that Mr. Westwood was inclined to think the reverse, and that these genera are not really parasitic, like others of the same family.

Double Daffodils.—Professor M. Foster moved that a Sub-Committee should be formed, consisting of Dr. Masters, Mr. Baker, the Hon. and Rev. Boscawen, Mr. W. Dod, Mr. P. Barr, and Professor Foster, with power to add to their number, to report on the influences of soil and situation and other conditions causing changes from single to double Daffodils, and *vice versa*, and that the Council be requested to give such facilities in the Chiswick Gardens as may be desirable to enable the Sub-Committee to carry out the necessary investigations.

Hybrid *Sarracenia*s.—The Rev. G. Henslow exhibited drawings of the epidermal tissues of the pitchers of some hybrids raised by Mr. Williams between *S. purpurea* and *flava*, and *vice versa*, and between *S. purpurea* and *Drummondii*. In the former the influence of *flava* was seen in the absence of a special secretive surface characteristic of *purpurea*, but the converse influence in the absence of honey glands on the lid. In the hybrid between *purpurea* and *Drummondii* the glands on the lid were present, characteristic of *Drummondii*, while a special secretive surface also existed, characteristic of *purpurea*.

***Desmids* and *Diatoms*.**—Mr. Henslow described an extraordinary growth of these Algæ, unmixed with any other, which had occurred in his private swimming bath, the temperature of which was kept at 80°, and the water constantly flowing. Volvox was absent, as well as filamentous forms.

CORRUGATED GARDEN ENGINE.—I have seen an advertisement of a garden engine with the tank made of corrugated iron. Can any of your numerous readers say how it answers, also where it is to be procured? as I cannot now find the advertisement.—CRUX.



HARDY FRUIT GARDEN.

Watering.—Most of the fruit is set and swelling slowly. The weather now is apparently "set fair," with hot sunny days, and soil so dry that unless watering be thorough and regular there is considerable risk of an undue quantity of fruit turning yellow and falling prematurely. By far the best method is to water at once, pouring on enough to reach the whole of the soil about the roots, and to follow the watering with a thick mulching of loose litter, so as to check evaporation, and to prevent the hot dry air coming in contact with the soil. Such a process is much better than half a dozen mere surface wettings without mulching, most of which evaporates in an hour or two of bright sunshine. So important do we consider this matter, that most of our labourers have been taken from other work to attend to it. To Strawberries a thick layer of long grass is applied after this watering, for the berries are swelling fast, and must not be left longer without a covering on the soil to keep it from being dashed upon the fruit by the heavy downpour for which we are longing so earnestly. We are, however, well provided for a time of drought with a pond on a hill, whence the water comes through pipes softened and warmed by full exposure to sun and air, and a cesspool containing several thousand gallons of house sewage, to which liberal additions come daily from the household. We mention this in view of showing those who are at a loss for water at this critical time what to do by way of provision for the future. Not every garden can be supplied by a pond above it, but there should be no country establishment without its cesspool and some provision of water. If there are no springs there is certainly the rainfall on buildings and roads, and the land drainage, all capable of accumulation in one or more positions accessible from the fruit garden. Now is the time to consider this matter, and to come to a decision about remedial measures, while the want of water and the baneful effect of drought upon the fruit crop are clearly before us.

Pruning.—Thinning and nipping the new growth of Plums, Pears, and Apples, and disbudding Peach and Nectarine trees, is being done. We are glad to find but little blistered foliage, notwithstanding the recent prevalence of cold north-east winds. Thinning of superabundant lateral growth, especially upon Pears, should always be done when the growth is young, both to avoid exhaustion of the tree and to admit light and air freely among the spurs. Young trees are now growing freely, and demand frequent attention in watering, pruning, and training. The forms to which close pruning is applied are cordons, palmette verriers, pyramids, and dwarf bushes, all which now in course of training should have the tips nipped off the leading branches and stem at 15, 18, or 20 inches, according to the habit of growth, which will afford time for the lateral as well as leading buds to become plump and ready for a forward midsummer growth. Stop, also, and thin spur growths, and do all necessary training as the growth becomes long enough. Promptitude in this matter is important, many a valuable

young branch being broken by high winds for want of timely fastening. Standards and bushes which are not to be kept close pruned must be kept free from crowded growths in the centre, and be examined occasionally for caterpillars, which frequently prove destructive to young growth and foliage. Never rest satisfied with a sluggish or weakly growth in young trees. The reason cannot be difficult to ascertain, for if healthy trees planted in sound well-drained soil fail to make a free strong growth, we may be sure drought or blight is the cause. We may add, however, that looseness of the soil about the roots is always a source of mischief, as also is an undue settling down of the soil, leaving a newly planted tree suspended by its supports with the roots half bare. Newly planted dwarf-trained Peaches and Nectarines should be kept growing freely. "The stronger the better," is our motto for such trees, and if the young leading shoots put forth laterals, select enough of the sides for furnishing the wall, and tie them in. We have often had such laterals well furnished with fruit buds.

FRUIT-FORCING.

PEACHES AND NECTARINES.—*Early - forced Trees.*—Trees forced so as to afford full crops of fruit in May and onwards require careful management to insure their bearing good crops, and to keep them in health for a number of years; as, having to make their growth in the winter months and to rest during the latter part of the summer, the chief object is to prevent the wood becoming over-ripe, to which end it is necessary to keep the house as cool as possible after the fruit is gathered by ventilating to the fullest extent and exposing the trees in mild showery weather by removing the roof lights, which will greatly benefit the foliage, doing much to prevent premature ripening of the growth and cleansing it of insect pests. Syringe the trees once or twice a day directly the fruit is cleared off, and well water inside borders, as the trees have yet to mature the buds. As the trees are cleared, all shoots that have carried fruit, and not being extensions, should be removed to make room for the full exposure to light and air of the shoots for next year's bearing, and the full exposure of the foliage to the influence of water through the syringe so as to subdue red spider, which must not under any circumstances be allowed to get ahead. Gross laterals should be stopped; but a moderate extension of these, providing they do not interfere with the light, is advisable from its tendency to retard the ripening of the young wood and foliage.

Second House.—Trees started at the new year will be advanced for ripening, and syringing the trees must cease. A good moisture, however, must be maintained by keeping the floors and borders damped morning and afternoon, and there must not be any deficiency of moisture in the soil at the roots, or the foliage will suffer. Any fruit of the midseason varieties will not be ripe for a few days, hence that not well placed for ripening should be turned up to the light. Fire heat will only be needed in cold wet weather to keep the temperature from falling below 60° at night, and 70° to 75° in the daytime. Air should be given freely and a little constantly at the upper part of the house. It should, however, be borne in mind that suddenly lowering the temperature is unfavourable to flavour, hence a genial heat through the night and on dull days, with free ventilation, favours the swelling and finishing of the fruit.

Succession Houses.—Tying in the young shoots intended for carrying next year's crop and extension growth must have attention. The shoots that are growing too luxuriantly may be pinched, especially the shoots for next year's bearing, when they have grown to a length of 14 inches; but it is well not to pinch the shoots in too much, as it tends to the production of a quantity of spray, which is difficult to restrain and is not favourable to the ripening of the wood. We only pinch extensions that have reached the extremity of the trellis, and strong shoots, so as to form an equal distribution of growth throughout the trees as possible. Stop laterals at the first joint, and allow extension as space admits. Syringe twice daily and water the inside borders thoroughly once a week, the drainage being good, and mulch the surface of the borders both inside and out with short manure. Young trees in course of formation should be properly disbudded, and the shoots retained should be allowed to extend their full length, provided they are evenly balanced. The principal shoots ought to be 12 to 15 inches distance apart, and the shoots on branches for bearing 15 to 18 inches apart; and the soil being stiff the trees will make stout short-jointed wood and afford fruit of the largest size and finest quality. Admit air early, and close early with plenty of moisture in the house. Houses in which the fruit is stoning should be kept at an equable temperature of 60° to 65° at night and 70° to 75° by day, with a free circulation of air; but where it is not wished to accelerate the fruit it is better to allow 5° less at night and keep at 65° on cold dull days, making up for lost time by closing early after the stoning is completed. Keep the foliage free from insects, fumigating for aphides, and red spider and thrips never can make headway if the syringing be properly attended to. Scale should be destroyed by the application of an insecticide.

STRAWBERRIES IN POTS.—For late forcing there certainly are not varieties equal to President, James Veitch, Mr. Radclyffe, Sir Charles Napier, Dr. Hogg, and Cockscumb. These properly forwarded give very handsome fruit of excellent quality. To grow them well they need to be brought forward carefully in a cool house, for in a forcing house and close to the glass the fruit is liable to be scalded, but in a late Peach house, or failing this, a cold pit will answer well, the plants being a good distance from the glass, and where they can have abundance of air at all times. In such a position the flower stalks will be short and strong, and the whole plant have a sturdy growth—such only giving large fruit. Thin the fruit to six or eight on a plant, and feed liberally with liquid manure,

surfacing the pots with short manure so as to keep them cool and moist at the roots, and syringe moderately night and morning until ripening commences. Plants with fruit wished kept back should be stood in a frame behind a north wall, and have plenty of air, with a net thrown over it to exclude birds.

PLANT HOUSES.

Gardenias.—These plants will bear severe pruning after they have flowered; in fact they are much benefited by being well cut back. They grow with greater luxuriance and keep comparatively free from insects, much more so than when the growth is slow and stunted. If mealy bug or brown scale are present syringe the plants thoroughly with petroleum and water at the rate of an ounce to the gallon. If one application does not destroy the insects repeat it two or three times at intervals of a few days. After the plants are thoroughly cleaned place them in brisk moist heat until they commence growing vigorously. When they reach this stage they should be potted. The young stock will be growing freely and must be kept clean, the shoots well stopped, and the strongest tied out towards the rim of the pots if shapely bushes are required. Repot when the plants require it, employing a compost of good loam and sand, or a mixture of peat and loam, for these plants will do well in either. When in active growth *Gardenias* require abundance of water both over the foliage and at the roots.

Poinsettias.—During the autumn and winter these plants are invaluable for the stove or conservatory, and their brilliant scarlet bracts are not surpassed by any plants at that season. They will last nearly double the time in the best position when prepared properly for standing in a much lower temperature than that of the stove. These plants can be grown to perfection in a much lower temperature during the summer months than many suppose. If grown in the stove they are drawn up weakly and ruined, but if gradually hardened to cool treatment after they are rooted they will be dwarf and capable of producing bracts of great size. For an early batch cuttings should be rooted at once, and others at intervals of about a month, but none later than the end of July. In order to achieve the best results it is important that the cuttings be dwarf and sturdy, not such that have been drawn up weakly in strong heat. The cuttings should be taken off with a sharp knife just where they join the old stem, or if these are too long the tops of the young shoots will strike freely. The cuttings should be inserted singly in 2-inch pots filled with sandy loam; a little sand should be placed in the centre of each for the base to rest upon. A good watering must be given, and the plants either plunged in the propagating frame or stood under handlights, kept close and well shaded from strong sun until rooted. As soon as rooted they should be gradually hardened to more light and air, and by the time the small pots are full of roots they may be in an intermediate temperature.

Euphorbia jacquiniæflora.—There is some little difficulty in striking the cuttings of this useful plant unless they are prepared for the purpose before insertion. Cuttings taken from plants growing in strong brisk heat are very difficult to strike, but when taken from plants in a cool house not one need be lost if ordinary care be exercised. The system we follow with success is to place the plants intended to supply cuttings in a warm house, and as soon as they are ready for taking off the plants are removed to the greenhouse for ten days. The cuttings are then taken with a heel or without, according to the length of the young shoots, and inserted thickly in sand in 6-inch pots. After insertion the cuttings are well watered and kept close under bellglasses in a heated structure until rooted. If shaded from bright sun scarcely one will fail to form roots, the old plants being again returned to the heated structure until more cuttings are ready. Directly the young plants are rooted, and before their roots become matted, they are placed singly in 3-inch pots in a compost of loam, sand, and a seventh of manure. They should be kept in heat until established, and then placed in an intermediate temperature.

Thysacanthus rutilans.—Cuttings of this useful plant should now be rooted for winter. Strong cuttings must be selected, and inserted singly in 3-inch pots, and if kept shaded from the sun and in a close frame in heat will be rooted in about a fortnight. As soon as they are rooted pinch out the point of the plants, so that they will form two or three shoots instead of leading with one. By the time they have commenced growth their small pots will be full of roots, and they can be placed in 5 and 6-inch pots in the same temperature as the *Euphorbias*. The same compost will suit them, and in their early stages a little leaf mould is very beneficial.

Habrothamnus elegans.—This and its varieties are very useful for supplying cut flowers, whether grown in pots or planted out to cover walls, and will by this time have ceased flowering, or nearly so. To have them in good condition for next winter and spring they should be pruned back without further delay. If the plants are as large as required, or have filled the space allotted to them, cut them close back, leaving only one or two eyes of last year's growth, as the plants flower upon the young growths made during the summer.



FOUL BROOD—FLOORS AND VENTILATION.

THERE are still many bee-keepers who have but a very inadequate idea of the origin and prevention of foul brood. I

have often stated that stamping out the disease on its first appearance by burning the combs and disinfecting and thoroughly baking the hive, then putting the bees through the purgatorial process for some days, is the most satisfactory way of dealing with the disease. Salicylic acid and carbolic acid are good preventives when judiciously used, but from what I know of the malady I do not believe it will effect a cure where the disease is much developed. Some people have spread an opinion that if bees have access to Willows the larvæ will have an immunity from the disease. Such people seem to be unaware that salicylic acid, though extracted from the Willow, is not chemically the same as either the honey or pollen derived from its catkins.

It is now nearly a quarter of a century since my experiment in propagating foul-brood fungi with milk appeared in the pages of this Journal. Some idea of the potency of these germs may be gained when I state that after I exposed them to a boiling heat, then hermetically sealing the vessel containing them, exposing it to the weather for some years, after drying the residuum and keeping it in that state for several more years, I reproduced the same forms as at first. Humidity within the hive is very favourable to the development of foul brood, as is also a close atmosphere. To avoid these the greatest care should be exercised.

Many years since through this Journal, I suggested that floors of hives should be constructed of some other substance than wood, hinting that charcoal might be substituted, but none responded to my suggestions. Previous to that I had been trying different materials that would be less absorbent of moisture than wood, but after many trials I found there was nothing so useful as perforated zinc, and my best hives were those so fitted. I never found a bee chilled on them. They were far less conductive than damp wooden floors; the perspiration from the bees and other matters all passed through to the under sliding floor, so that the bees were at once relieved from the labour of cleaning out the latter and from the offensiveness of the former. These ventilating floors are also very serviceable and of great importance to the good management of bees—for example, during snow, when it is necessary to confine the bees. The first mild sunny day in spring a hive is much benefited by giving a good ventilation for two hours during the warmest part of the day, while it is absolutely necessary during hot weather in summer that bees should be well ventilated from beneath. It prevents crowding out, allowing the bees to work with freedom, prevents the collapsing of combs and incipient foul brood by overheating, and is an absolute necessity in transit, such as when bees are taken to and from the Heather. It will, perhaps, astonish those who are in favour of thick close-fitting floors, that for many years my most forward hives were those that stood all winter with a large space of ventilation beneath. Moreover it is the practice of many of the most successful Scotch bee-keepers to so ventilate their hives during winter. The practice of under ventilation and insensible upward ventilation is of Scotch origin, and has been followed for nearly forty years in my apiary, while a system on the same principle has been carried out from time immemorial in the Stewarton hive. Hives so managed will, as a rule, be free from many evils found in neglected ones, not the least being that of foul brood, which damp and overheating principally cause. The foregoing hints will perhaps assist the unprejudiced bee-keeper who may be in possession of Italian bees, which require more room and air than the common variety, but for which many bee-keepers have made no allowance: hence I believe the cause of cases of foul brood which would have been avoided had the bees been domiciled in suitable hives. If bee-keepers would exercise more judgment instead of following every interested person, and study the nature and requirements of the honey bee, they would not only save much expense, but get much more satisfaction.—A LANARKSHIRE BEE-KEEPER.

LIGURIAN BEES.

ONCE upon a time, as the story goes, a philosopher (so to term him) in a fit of deep meditation was struck by the fact that all great and prosperous cities are situated on rivers; and on mature reflection this coincidence appeared so remarkable that our philosopher put pen to paper, and out of the sublime depths of his inner consciousness evolved a ponderous tome on the subject, and which, if memory serves us, gained a wide circle of readers at the time. It may be that certain carping critics will take offence at our ranking our author a philosopher at all, and that they would rather be inclined to class him, to use the phraseology of an American humourist, a "phool!" In which case we penitently confess our error, and exclaim in the words of Monkbarns, "Well hast thou spoken." The cause is patent to all except to our ph—. Still, we will not be too harsh under the circumstances, remembering, too, as the author of "Hero Worship" tells us, that the latter genus comprises no unimportant part of the population of these happy isles.

I have received numerous communications from apiarian readers of the *Journal of Horticulture* as to my experience of Ligurians as contrasted with our brown bees, but I have little to add to the remarks given in page 116 of my bee book. I have now no Ligurians in my apiary, and I have good reason to add that it is very unlikely I shall ever have any again. They winter badly, are more liable to dysentery than our brown bees, are of decidedly less value as honey-gatherers; are more troubled with the swarming mania; are much addicted to robbing other stocks, even when a honey glut is on, in preference to gathering stores in the natural manner abroad; are more revengeful under provocation. In fact, their ferocity makes them a nuisance in the apiary and to neighbours as well. Often hath the complaint been made to us by some rustic neighbour, "Please, sir, one o' yer yaller bees jest hev stung our Sal, or Tom, and she (or he, as the case may be) had to stop t' ome all day (from school) in consekens."

The worthlessness of Ligurians as a honey-gathering variety has been long recognised by most of the leading practical apiarians of the day—apiarians, that is, whose business it is to raise honey for the market, and who do not raise Ligurians for sale. "I cannot at all imagine," said a visitor in looking over an apiary of brown bees last season, "how it is that your brown bees get so much more honey than my Ligurians. It was just the same at Mr. —'s apiary where I called yesterday. It is really very remarkable." And yet the gentleman was a philosopher too.

I know of two highly prosperous apiaries in this county where the supering system is followed, one of which is situated some twenty miles distant from my place, the other ten. Not a Ligurian is in either. Neither of the proprietors court publicity. The former wrote me last autumn that one of his brown stocks had yielded the splendid harvest (in supers) of 124 lbs. of honeycomb, while several others gave supers of 50 to 60 lbs. each.

It is to be feared that Ligurians have done much to make bee-keeping unpopular. To an unprofessional they are so much more difficult to manage than our indigenous variety of the *Apis* family. That this opinion is not shared by all I well know. An enthusiast (who had Ligurians for sale—but this is by-the-by) at a certain bee show in this county some two years since, after referring, *sotto voce*, compassionately to a friend on our lamentable ignorance on the subject, he sententiously assured us at parting "that not only do Ligurians gather more honey than blacks, but, sir, their honey is of a much better quality too!" Could the force of folly any farther go?

We have at various times received letters from bee-keepers, thanking us for cautioning them at the outset of their career against Ligurians, and contrasting the results in their apiaries of brown bees with those of Ligurians in their neighbours' apiaries.—AUTHOR OF "BEE-KEEPING PLAIN AND PRACTICAL."

SUPERING HIVES—VICIOUS BEES.

FOR more years than I need name I have kept bees, but only lately have I tried bar-frame hives. There are various points on which I, and many like me, would be very glad to have some information. Only one question now, What is the best way to put supers on bar-frame hives? A few days ago I put on one—twelve 2 lb. sections, but by the time I had the quilt off I think the bees were more savage than I have ever seen bees before. I did not like my surroundings at all, and duly considering my two eyes and 20,000 bees *cum talibus* I was glad to finish and beat a retreat as quickly as possible. We do not like old friends suddenly changed in that way, and stinging arguments are to most of us objectionable. Perhaps I ought to write to the *Bee Journal*, but as I see it only occasionally, and yours regularly, I thought I might trouble you. Moreover, the information sought, if given in the *Journal of Horticulture*, will probably reach the class of persons I have especially in view.—PHILOKEPOS.

[Your correspondent "Philokepos" wishes to know the best way to put supers on frame hives. The question itself is simple, but judging from the tone of his letter the answer requires amplification. Many of the modern bee-keepers and dealers in hives are comparatively ignorant of the science of apiculture, through which they have condemned some of the best properties in hives, and have introduced and advocated questionable changes apart from the recognised system of scientific apiculture, as, for example, in the Stewarton hive with its slides. By their use the quilt can be put on and taken off without a bee escaping or being irritated. Moreover, by their use the supers escape the invasion of the queen, and draught is prevented from passing up through brood nest, as well as the vitiated air which discolours the comb, while the operator can place supers with an entire immunity from stings, and no superfluous queen-excluder is necessary.

The quilt, as the pages of this *Journal* can prove, was the idea or invention of "A Renfrewshire Bee-keeper," Mr. Langstroth, and myself a quarter of a century since, but its use was in combination with slides, which have been condemned by some bee-keepers, but in my opinion are very necessary, not only in the Stewarton but in frame hives.

My frame hives have lateral slides, which give me complete control over my bees, especially if a little carbolic acid is used. In hives with drawing slides, such as in the Stewarton, a great mistake is having them made too slack; the bees fill the opening with propolis, and then the slides become unworkable. They should be made neat-fitting, then there is no difficulty in working them. The propolis of the slides was the only objection the modern bee-keeper had, but unfortunately, with the badly made white pine frames and very objectionable narrow top bar quilts, were 100 per cent. more propolised than slides ever were, which when

removed so irritated the bees, that not only is it inconvenient, but highly dangerous manipulating such hives.

When supering hives the first thing to observe is that the day is warm and bees getting honey. If at all cold they sting readily, and do not forget to do so. If quilts are on have a sponge or a wing saturated with carbolic acid, raise the quilt gently at one side, rubbing the tops of the bars slightly with the acid (the bees retreat from it); repeat the process as the quilt is raised. When removed place the supers on the top of the hive and cover well; but before placing the supers it would be advisable to have thin adapting boards underneath them and on the top of the frames, with openings at the outside combs only. Better still if these adapting boards were in pieces; but best of all if there was a lateral slide for every frame, which may be close, or just as much open as to allow insensible upward ventilation, when not a bee can escape. The quilts are then neither gnawed nor propolised by the bees, and the bee-master need have no fear of infuriating them, because the quilt can be removed or placed at any time with pleasure, and not a bee escapes.—A LANARKSHIRE BEE-KEEPER.]

FOUL BROOD.

I AM sorry I have to again trouble you. Last autumn I asked if some of your correspondents could give me through the *Journal* a receipt to cure foul brood in bees, and one or two were inserted, which I put in practice and carried out to the letter. I was, however, again disappointed the other day by finding several cells still in the hive containing foul brood. Will you kindly tell me what I had better do with them? I am spraying them with salicylic acid, and they are all fairly strong, one or two covering ten frames.—FREDERICK BULL, *Gardener, Brymbo*.

[Salicylic acid is a better preventive than a cure, and is only successful in the treatment of foul brood in the hands of the experienced. The best and most satisfactory treatment now, seeing that the hives are pretty strong, is to swarm them when ready. After three weeks separate the remaining bees from the combs, put the bees into a clean new hive, or one that has been disinfected, then consign the combs to the melting pot, and subject the hive to the fumes of sulphur after it has stood in a moist place (with a temperature of not less than 60°) for at least eight days. After that again disinfect with a solution of salicylic, carbolic acid, or permanganate of potash.]

FERTILE WORKERS AND QUEENS IN WORKER CELLS.

"A LANARKSHIRE BEE-KEEPER" (page 392), gives his testimony as to queens and fertile workers living peaceably together. Perhaps he has not read the account of my experiments in the "*British Bee Journal*" pages 66-7, vol. xi., where I introduced black queens to colonies having Syrian fertile workers, and had black workers and Syrian drones hatching side by side for six weeks after, which must be taken as conclusive evidence of the fact. Mr. B. F. Carroll, of Texas, U.S., has been writing this year in the "*American Bee Journal*," and "*Gleanings in Bee Culture*," giving evidence to the same effect, but he does not appear to have made a conclusive experiment to settle the point, and may have read or heard of mine, which of course I cannot say; anyhow, I believe I was the first to discover or satisfactorily settle this interesting and valuable fact. No doubt "A. L. B. K." will be interested to hear that I can bear testimony to queens being reared in worker cells as he describes, having seen several of them, and curiously enough I mention this fact in the "*British Bee Journal*" for May 15th, page 167—the very date his is published in this *Journal*.—JOHN HEWITT, *Sheffield*.

TRADE CATALOGUE RECEIVED.

W. P. Laird & Sinclair, Dundee.—*Catalogue of Florists' Flowers*.



TO CORRESPONDENTS

* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Peach Tree Unhealthy (E. T. J.).—There is little doubt that the root-action of the tree is defective, and whether it is planted out or in a pot

fresh turfy loam and a surface dressing of manure appears to be needed. If this cannot be given now, apply liquid manure copiously. Has the tree been overcropped? Are there lenses in the glass above it? Whether there is or not, slight shading is advisable to arrest evaporation, as the moisture is evidently escaping from the foliage more rapidly than it is supplied by the roots, and hence the collapse of the leaves.

A Peculiar Gloxinia (J. H.).—The flower is a singularly formed one, the outer divisions of the corolla being exactly like petals, the true corolla being perfect, and much rounder than usual. The variety is well worth preservation, though we should think it probable that the flower is an accidental and not a permanent departure from the ordinary type.

Bleaching Celery (J. E., Burnley).—We presume you mean blanching, which is effected simply by banking fine soil round the stems when they are large enough also dry; cocoa-nut fibre refuse, ashes, sand, moss, leaves, or indeed anything that excludes the light answers the same purpose, but ordinary soil dug from the sides of the trenches, and if heavy broken up into fine particles, answers all ordinary purposes.

Thrips on Vines (C. G. Fleetwood).—The leaves you have sent are attacked by thrips, but not seriously, and by prompt measures you may prevent the insects doing any injury to the Vines. Thrips may be destroyed by fumigating on two consecutive nights, repeating the process in a week or ten days; but as probably only a few of the leaves are attacked we should sponge them with a solution of nicotine soup, Gishurst compound, or any approved insecticide of the strength named by the vendors, which is two or three ounces to the gallon of water. A handy man will sponge hundreds of leaves in an hour, and prevent the increase of thousands of insects by destroying the few now established.

A "New Fuchsia" (R. H. Spencer).—The plant is *Eucharidium grandiflorum*, and though related to the Fuchsia in a distant degree it is too widely removed to render your statement that it was "raised from Rose of Castille Fuchsia" in the slightest degree probable. We have heard of a person who believed that the yellow Abutilons had been obtained by crosses with some of the Allamandas, and possibly it would have been as difficult to convince him that his ideas were not strictly accurate as it would be to controvert such a positive assertion as that with which you have favoured us.

Collecting Plants (Collector).—If you write to Mr. Smith a month or six weeks before you intend leaving the nursery it will no doubt be sufficient, and if your intentions are clearly stated there will be little difficulty with regard to passing through the different departments. Steady application to your work and studies will obtain you friends there who will assist in your efforts. Lindley's "Descriptive Botany," published by Bradbury, price 1s., contains a great number of terms employed in the description of plants.

Cocoa-nut Fibre Refuse for Roses (J. P.).—It is good as a mulching for Roses, and encourages surface-rooting when thick enough for keeping the soil continuously moist. If the soil is rich, or the plants are well supported with liquid manure, Roses can scarcely fail to flourish when the beds are covered with this material in summer.

Setting a Boiler (A Reader).—If you possess no technical knowledge on the subject of setting boilers, and your bricklayer does not understand the work, it is not easy to make the subject clear to you without illustrations. The best advice we can give to you is to write to the makers of the particular boiler to which you allude, and they will possibly be able to supply you with an illustrated circular, or will otherwise give you the details you need. If they fail to do so you may write to us again and we will assist you as far as we can.

Cuphea platycentra for Bedding (A. B.).—This is the name of the plant of which you have sent a spray. Your plants inserted closely together in a small bed near a walk would have a pretty effect; but they would scarcely be effective in a vase 20 yards from the front of the house. For such a vase and position Pelargoniums and Petunias would be more suitable. Some small beds of Cupheas were much and deservedly admired at Kew last year. They were only about 2 feet in diameter, and, being close to the walk, the thousands of bugle-like flowers could be seen to advantage. Had they been 20 yards from the walk their beauty would have been practically "lost in the distance."

Single Dahlias (Idem).—Plants now 3 inches high, strong and established in pots, will flower freely during late summer and autumn if planted in good soil and well supplied with water, and the surface of the ground mulched with manure. The plants may be either secured to stakes in the ordinary manner or pegged to the ground, the position suggesting the best method to adopt. If intended to be pegged down they are best inserted in a slanting direction, and take particular care that the soil in the pots is not dry at the time of planting.

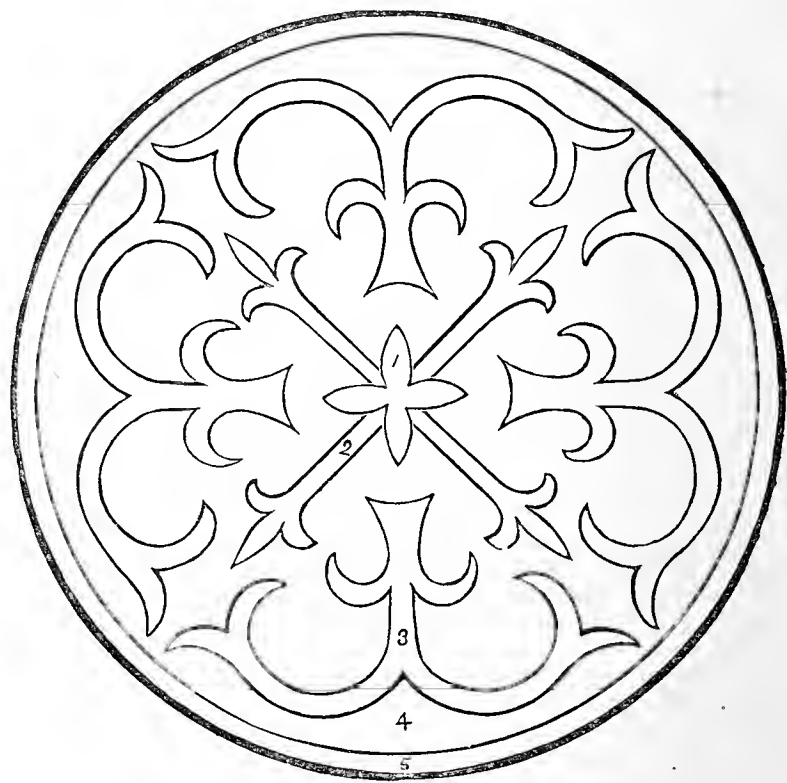
Second Crops of Melons (L. M.).—If you have never been able to obtain two crops of Melons from the same plants it does not follow that they are not obtainable. On the contrary, we have had many second crops, and sometimes these have been even better than the first. For insuring this the plants must be early, and the first crop ready, say, early in July; there must be a good command of heat and good cultural attention. The plants must not be dried off in the manner that some cultivators deem necessary for ripening the fruit, but must be kept steadily growing, the foliage always fresh, and no red spider or other insects permitted on it. After the first crop is cut a slight pruning and rearrangement of the growths may be needed, and a little of the surface soil removing from the bed, fresh being added to incite the formation of fresh roots. These produced, the rest is easy, amounting to a repetition of the treatment by which the first crop was produced. When the first ripe fruits are removed the plants grow freely, and soon commence flowering. Space must be afforded for the newly developing leaves, some of the older, which will be fading, being removed for that purpose. We do not approve of withholding water from Melons to improve the flavour; healthy active foliage well exposed to the light and air is far more effectual in imparting flavour to the fruit than dry soil is and withered leaves.

Insects on Plants (H. S. P.).—You ask, "How is it that your plants are

so infested with green fly?" We are bound to answer, it is by neglect of the cultivator. When such plants as Pelargoniums, Fuchsias, Petunias, and Abutilons are infested it is quite certain the grower of them has not comprehended the importance of fumigating and syringing with insecticides in good time; and no man who permits insects to gain the ascendancy in the manner suggested can hope to be a good plant-grower. As we have repeatedly stated, the best cultivators of plants never allow any insects on them. They syringe and fumigate to prevent them; and if by chance one or two should be seen there is no rest until they are exterminated. When insects are so numerous as in your case they can only be eradicated by very frequent and rather strong fumigations, or repeatedly syringing them with some insect-destroying solution; and when such strong measures have to be resorted to, there is a liability of some of the plants being injured. You had better procure some tobacco water or some of the insecticides that are advertised, and syringe the plants thoroughly with them according to the directions on the bottles or packages. Those very much infested should be laid on their sides on mats or grass, and turned round to enable the solution to be applied to the under sides of every leaf. This must be no mere sprinkling but a thorough washing, and the next day the plants should be well syringed with pure water, then, when dry, fumigated once a week to keep them clean. We suspect you allow the plants to get too dry at the roots, and keep the atmosphere of the house too dry also; in a word, you appear to be afraid of using water, and consequently become a friend of the insects, which appreciate your treatment, and increase and multiply accordingly.

Liquid Manure for Cucumbers (Idem).—When the pots are crowded with roots and the plants bearing freely liquid manure is of great advantage. Guano at the rate of about half an ounce to the gallon of water is an excellent stimulant, so also is soot water. You should also top-dress with lumps of turf and manure, piling them on the soil and keeping them constantly moist. You would then increase the number of roots to absorb the food supplied, and the plants would increase in vigour accordingly. Keep them scrupulously clean and maintain a moist atmosphere.

Planting Carpet Bed (E. Mason).—As you say you have "plenty of Alternantheras and all kinds of plants," and wish to plant a round bed 8 feet in diameter effectively on a plan somewhat similar to the sketch you have submitted, possibly the annexed design will meet your requirements. It is of a "scroll pattern," and certainly better than the outline



you have prepared. This bed may be planted effectively as follows:—1, *Alternanthera amœna*; 2, *Leucophyton* or *Antennaria*; 3, *Alternanthera paronychioides*; 4, a groundwork of *Herniaria* or *Mesembryanthemum cordifolium variegatum*; 5, raised about 5 inches, and the slope planted with *Echeveria secunda glauca* interspersed with *Sedum glaucum*. Such an arrangement well carried out would have a good appearance, but the design might be rendered equally pleasing by a different method of planting, and on this matter you had better exercise your taste in accordance with the plants at your disposal.

Planting Flower Bed (E. P.).—You ask "whether it is better to commence at the outside and finish in the centre in planting a round flower bed, or to start in the centre and finish on the outside, as there is a conflict of authority on the point." As usual, when two extreme courses are advocated the safe mean lies between them, and you will not err if you first plant the outside row, or perhaps two rows round the bed, and then commence in the centre, arranging the plants to meet those round the margin. By finishing on the outside such neat and regular margins cannot be had, while working always to the centre is often inconvenient. In the London parks one or two outside rows are invariably planted first, and it would be difficult to find a neater and better disposition of the plants.

Hot Water for Plants (M. D.).—The paragraph to which you refer is probably the following, but whether hot water is as potent as represented in reinvigorating plants we must leave you and such other readers as may be interested to test the matter, proceeding cautiously and experimentally:—"M. Willermoz, in the French 'Journal of the Society of Practical Horticulture,' relates that plants in pots may be treated with hot water when out of health, the usual remedy for which has been repotting. He

says when ill health ensues from acid substances contained or generated in the soil, and this is absorbed by the roots, it acts as a poison. The small roots are withered and cease their action, consequently the upper and younger shoots of the plant turn yellow, and the spots with which the leaves are covered indicate their morbid state. In such cases the usual remedy is to transplant into fresh soil, clean the pots carefully, secure good drainage, and often with the best results. But the experience of several years has proved with him the unfailing efficacy of the simpler treatment, which consists of watering abundantly with hot water at a temperature of about 145° Fahrenheit, having previously stirred the soil of the pots so far as might be done without injury to the roots. Water is then given until it runs freely from the pots. In his experiments the water first came out clear, afterwards it was sensibly tinged with brown, and gave an appreciable acid reaction. After this thorough washing the pots were kept warm. Next day the leaves of two *Ficus elastica* so treated ceased to droop, the spread of black spots on the leaves was arrested, and three days afterwards, instead of dying, the plants had recovered their normal look of health. Very soon they made new roots, immediately followed by vigorous growth."

Names of Plants (*An Old Nantwich Subscriber*).—*Menyanthes trifoliata* the Buckbean, related to the Gentians, and remarkable for its intensely bitter taste. In the north of England this plant has, in a scarcity of hops, been used to give a bitter flavour to beer. (*G. B.*)—*Staphylea colchica*. The specimen was much withered, but resembles *Genista tinctoria*. (*Young Gardener*).—1, a variety of *Lantana*; 2, *Lippia citriodora*; 3, *Asplenium Trichomanes*; 4, *Hibiscus Rosa-sinensis*; 5, *Cyperus alternifolius variegatus*.

COVENT GARDEN MARKET.—MAY 28TH.

A BETTER trade doing this week, goods being cleared more readily without any alteration in price.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	5 0	Oranges 100	6 0	to 10 0
Chestnuts bushel	0 0	0 0	Peaches per doz.	6 0	12 0
Figs dozen	4 0	6 0	Pears, kitchen .. dozen	1 0	1 6
Filberts lb.	0 0	0 0	„ dessert .. dozen	1 0	5 0
Cobs per lb.	1 3	1 6	Pine Apples English .. lb.	2 0	3 0
Grapes lb.	2 0	5 0	Strawberries .. lb.	2 0	6 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	6 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	4 0	Mushrooms punnet	0 9	to 1 6
Beans, Kidney .. lb.	1 0	0 0	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 0
Broccoli bundle	0 9	1 0	Parsley dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	0 0	0 0	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capiscums 100	1 6	2 0	„ Kidney .. cwt.	4 0	5 0
Carrots bunch	0 3	0 4	„ New lb.	0 2	0 4
Cauliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 6
Coleworts doz. bunches	2 0	4 0	Scorzoneria .. bundle	1 6	0 6
Cucumbers each	0 3	0 6	Shallots lb.	0 3	0 6
Endive dozen	1 0	2 0	Spinach bushel	2 6	3 6
Herbs bunch	0 2	0 0	Tomatoes lb.	1 0	0 0
Leeks bunch	0 3	0 4	Turnips bunch	3 0	0 0
Lettuce dozen	1 0	1 6	„ New bunch	1 0	0 0



ARABLE AND PASTURE FARMING.

A COMPARISON between arable and pasture farming, or, in other words, a comparison between corn and stock farming, may be fairly considered one of the most vexed questions of the period. It has, however, always proved a difficult question to be decided, and it still continues surrounded by the same difficulties, for although the prices of stock have risen and the value of grain greatly reduced, yet this cannot be made the measure of profits and loss. The disturbing influence of the seasons, the loss by foot-and-mouth and other diseases, the modes of management, and the practical knowledge required both in breeding, rearing, and feeding of live stock, and the nature of the soil and climate, together with the conditions of management as compulsory and connected with farm leases, as well as hundreds of minute points connected with the farm, render any reliable account in figures one of the utmost difficulty.

Although we have no desire to exaggerate the requirements of the occupiers of arable farms, or those of a mixed character containing grass or pasture land as well as tillage land, yet we must mention a few of the impediments which meet the farmer at almost every step. As an unmixed farm of arable land only is quite the exception, we must speak of the subject as one in which agricultural produce generally, as well as live stock of various kinds, are generally considered as essential in practical farming of arable land. It is not our intention to question the justice or fairness or otherwise of various

difficulties by which the farmer is surrounded, yet they must not only be acknowledged but provided for as matter of business to which his calling has pledged him. We must therefore only mention a few of the most important points which will occupy his attention.

The farm should be taken at a fair rental, together with tithes and rates, the former having lately fallen and the latter increased. The term of years, the conditions of lease, and the liberty of cultivation should be as great as that of the market gardener, many of whom began business with little more property than their working tools, yet these men are bound to no course of cultivation. Why should the farmer, except on quitting? The nature of the land and the climate in which it is situated may well be made the subject of estimate by some experienced farmer or land valuer, especially as the basis of proceeding in taking a farm by young men and beginners in agriculture, at any rate; the rotation of farming being extremely important in order to secure the tenant facility in culture and cropping and the landlord a clean and fair face upon the land at the time, of tenants quitting is a matter not to be hastily decided. The question of a sufficiency of capital is of the highest importance, and it becomes still more so if large flocks and herds are considered a necessity. The supply of local labour, too, either by cottage on the farm and rented therewith, or in connection with a village near at hand inhabited principally by people inured to agricultural pursuits is a positive necessity, for no farm can be conducted with advantage depending only upon casual labour.

The subject of "Arable and Pasture Farming" was introduced last winter at the Kingscote (Gloucestershire) Farmers' Clubs by Mr. Bowen Jones, who read a paper on this subject, which was given by the *Wilts Standard*. In that it is stated:—"A decade of unparalleled depression in the chief industry of the country has set many minds thinking. Advice of all sorts and descriptions has been showered upon the unfortunate agriculturist. The development of the United States of America, of Canada, and India, with respect more especially to the growth of cereals, and Wheat in particular, has produced a gradual, but in the aggregate a considerable fall in the value of these commodities. To all appearance this reduction is likely to be of a permanent character. As shown by the printed averages, and till the present year, and to some extent even now, these returns are an exaggeration on the prices realised, in my opinion something like 5s. per quarter, owing to the defective way in which the corn returns were calculated. On the other hand a comparison of the average prices of butchers' meat, as exemplified by returns of the Metropolitan Cattle Market, will show that a gradual but well-marked increase has taken place, notwithstanding the long-continued distress that has affected the commercial interests of the kingdom. Surely the high averages of recent years should have stimulated farmers to have bred and fed more stock, but an examination of the recently published agricultural returns shows us that this is not the case. These figures give us anything but a pleasant prospect or a hopeful outlook. We find that the total area under cultivation and grass has increased during this period from 31,266,919 acres to 32,385,085 acres, or 1,118,166 acres, while in the same time arable land has diminished 769,295 acres, and permanent pasture extended 1,887,361 acres. In 1874 corn crops bore a per-centage of 30.2 to cultivated and grass land, and in 1883 the per-centage was 26.6. Notwithstanding this enlargement of grass land area our cattle have decreased 162,712 head, and sheep 5,245,670, which gives for every 100 acres of cultivated and grass land in 1883, as compared with 1874, a diminution of cattle 1.2, sheep 19.8. What do these figures illustrate? 1st, That British farmers should and do recognise the fact that they must look to some other source than the growth of cereals alone for direct profit. 2nd, That the high range of prices for butchers' meat indicates an important direction to which they should turn their attention. 3rd, That the recent abnormally high prices of meat, while irksome to the consumer, have not benefited the farmer."

The preceding indicates the delusions under which farmers in general are acting, as it is shown that the high prices of meat, while irksome to the consumer, have not benefited the farmer. Another delusion is it being inferred that the high range of prices for butchers' meat indicates an important direction to which they should turn their attention. Nor can we see that the farmers should recognise the fact that they must look to some other source than the growth of cereals chiefly for direct profit. This is not an entire delusion, for excepting through the attacks of foot-and-mouth disease the benefits of dairy farming and cattle-feeding have been generally as good as usual. It is, however, a matter for serious reflection on the part of owners of land, as well as the tenantry, that quite irrespective of the price of corn, and where the greatest dependance has been placed under good management of both stock and corn, great tracts both of arable and pasture land also have been abandoned; consequently stock-farming either in cattle-feeding or sheep-feeding has not saved thousands of farmers from ruin, and in various cases more land has by the owners

been laid into permanent pasture, as shown by the statistical returns, often from inability to stock them with sheep to be kept and reared except at a loss. Without reference to the price of corn, which it is now a fashionable and popular prejudice to assert does not pay for growing, and which may be true under the rotations and system of stocking with sheep which has so long been customary, and which has now, through the ruin of farmers, who, although they were good stock managers, yet being men of only moderate means had not money to lose, have been unable to meet the times. The sheep stock system, although it is said to pay the rent, and at the same time manure the land for corn, yet owing to the large capital for investment and extra labour required it has been fatal to the men of moderate means, who have in vain attempted to follow a system which men who possessed capital sufficient to meet losses could continue to meet difficult times and bad seasons.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—The weather in most districts of the kingdom has been lately rather too dry for the Mangold seed to germinate, except that which was sown in April, for the rains which followed the frosts of April vegetated small seeds like Mangolds, Cabbage, Carrots, &c., but the seeds put in later do not appear, and if the season continues a dry one the plant of late-sown Mangolds, Carrots, early Swedes, &c., will not prove a regular one, for it often happens that in hot dry weather the Turnip flea is very destructive, and as far as my experience goes we have no remedy against this mischief, except that of later sowing and waiting for rain. On the other hand it is quite impossible to calculate upon our climate, for we remember various seasons, one of which was 1864, when the Turnip seeds, either of Swedes or common Turnips, did not vegetate in all the early seedings, in consequence of which the Turnip crop was in most districts a failure, and very seriously affected the value of sheep stock as store animals or as ewes for the production of early lambs. The land is now so dry that the seeds sown will not vegetate without rain, but the only thing which can be done is to seed and manure the land as usual and wait for a timely rain. It will be desirable, probably, to wait until the second week of June before seeding; for Swedish Turnips drilled during the first half of the month of June in the southern and south-eastern districts, as well as the home districts, are generally considered the best, as the roots produced in ordinary seasons will maintain their feeding value better when sown at that time. In the northern or north-midland districts, as well as Scotland, the seeds of Swedish Turnips are usually put in about the 20th of May.

Hand Labour.—The men are now busy hoeing of Peas, Beans, &c., for which the weather is very favourable in nearly all parts of the kingdom, for, although some thunderstorms have occurred, there has been no general rain up to the time we are writing (May 20th) since the last week in April. If the weather continues dry the sooner the Broad Clovers and Rye Grasses are cut the better, for then it will not only be likely to make well into good hay, but it will favour the chance of obtaining a good second cutting for hay, and also an opportunity for forcing on a third growth well adapted for ploughing under as manure for the succeeding Wheat crop. Men at intervals may now be employed in turning earth heaps and mixing compost of earth and dung in readiness to be laid out on pasture land as soon as the land is cleared of the hay crop. Horse-hoeing and hand-hoeing of Potatoes, too, should be now going on, for the earliest hoeings are always the most effective, for the weeds in infancy are easily destroyed by hoeing, but not so with those which have obtained a firm root-holding, for in the event of rain succeeding the strong weeds many of them will grow again. The hand-weeding of Wheat, if not yet done, should be continued, and it should be done by women if these can be obtained in farm work; but in various districts they refuse to work, except in haying and harvest, in which case the weeding of Charlock and Poppies, &c., out of the Lent corn should be done by Koldmoo's weed-eradicator, an excellent implement, and offers the only chance in various districts of having the weeding done at all. For where the women refuse to work in the fields there is only the infirm men and lads which are available, and frequently not even these are to be had. If the dry weather prevails it is important that the Clovers should be cut early, for we recollect in 1870 in those cases where the grass was not cut early it was so much diminished by dry weather that it never scarcely paid for cutting on the dry soils and upland pasture districts. The home farmer should now look over his latter sowings of Lent corn, or where the wireworm has thinned the plants, in order that it may be arranged in good time to sow broadcast $1\frac{1}{2}$ cwt. per acre of nitrate of soda. This will produce instantaneous effect if the weather proves ever so dry, and will be sure to prove an economical dressing.

Live Stock.—The cattle and sheep of this country is, according to the statistical returns, greatly reduced in number, but it is especially the case with sheep, so that many farmers may with advantage save their lambs for stock, and save the cost of cake and expensive feeding stuffs generally, and at the autumn find they have sufficient sheep to feed the root crops, &c., of next winter without buying. The rearing of calves, too, is important, for good dairy cows of a good milking kind are, and are likely to continue, scarce if not very dear. The home farmer, too, may rely upon animals of his own breeding and selection if he has used ordinary care, and will be sure to possess better stock of his own rearing than that generally offered in the cattle markets. Mares and foals will now require careful attention, for we do not like the foal to follow the

mare in her work in the field, which she may be expected to take part in when the foal is about a fortnight old. for, irrespective of accidents of various kinds arising, it is important both for the mare and foal that they should not be separated from each other for more than five hours at one time, and if there is more than one foal they do best in company in the boxes while the mare is away at work in the field. We fear that horse-breeding for some years past has not benefited the farmer as it might have been expected to do under more favourable circumstances; yet as a good style of colt well descended of any breed, either for farm work, hunting, or harness work, will fetch double the price of animals bred anyhow; but the latter is too much the fashion, owing to the difficulty of obtaining in various districts entire horses of a good style and character and bred from sound parents. This, together with the careless way the mares for breeding purposes are selected, has brought the business of horse-breeding and rearing into disrepute in various districts. Dairy cows will now be lying out at night on good pastures, yet in hot sunny weather they may be brought into the stalls at about eleven o'clock in the morning, instead of being teased with flies under the trees in the pastures, and remain there until four o'clock in the afternoon, and receive a bait of green fodder, such as Trifolium, Clover, or Vetches, &c., both on coming into the stalls and again before quitting in the evening; and on the generality of pastures, even if plenty of grass is found there, the cows will maintain a better supply of milk and with more cream than when allowed pasture only.

BATH AND WEST OF ENGLAND SOCIETY AND SOUTHERN COUNTIES ASSOCIATION'S SHOW.—This opens at Maidstone on June 2nd, and is expected to be of great magnitude and excellence. The exhibition of implements, machinery, seeds, &c., will be one of the grandest displays ever held in connection with the Society, and very much more extensive than last year's. There are 71 compartments for machinery in motion, against 55 last year; 384 lineal feet of seed shedding, against 279 last year; 4347 lineal feet of ordinary shedding, for agricultural implements only, against 3514 feet last year; 549 lineal feet of hoarding shedding, for cattle foods, artificial manures, &c., against 411 last year; and 850 lineal feet of miscellaneous shedding for carriages and articles of general utility, against 735 last year; whilst 1364 yards of open space have been taken for greenhouses, hay-drying, and other erections, against 892 last year. All the leading agricultural firms are represented in the yard, and many of them have also made entries for the exhibition of field implements in the trial fields. The latter exhibition will possess unusual interest, as it will comprise an exhibition of silos, several having been specially erected, and of the processes of storing and compressing ensilage. The Hop entries number no less than 66, which is 50 more than on the last occasion—viz., at the Tunbridge Wells Show—on which prizes were given in this department. Prizes are given for East Kent, Mid Kent, and Weald of Kent Hops. The bee department will possess special interest, as there are as many as 75 entries of bees, honey, hives, and bee appliances.

OUR LETTER BOX.

Channel Island Cattle (X. W.).—The Channel Island cattle consists of Jerseys, Alderneys, and Guernseys; the former and the latter are the breeds chiefly imported. The number of Alderneys bred on the island is very small, and scarcely over one hundred are imported annually into this country. They may be said to be in most respects a modified form of the Guernsey, having been so much lately influenced by the use of Guernsey bulls, which they very much resemble both in form, colour, and richness of milk. The Jersey is by far the smaller animal, finer in the bone, and neat in its general appearance. The horns are short and thin, being also more curled or crumpled; the face is finer, with a more docile countenance.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain
	Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
		Dry.	Wet.			Max.	Min.	In sun.	On grass.	
1884.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.	
May.										
Sunday	18 29.855	55.2	49.8	N.E.	56.5	65.8	49.5	106.7	48.0	—
Monday	19 29.901	54.4	49.4	N.E.	56.2	63.8	47.3	100.6	43.0	—
Tuesday	20 30.076	55.4	49.4	N.	55.3	65.4	44.3	107.6	40.4	—
Wednesday ..	21 30.447	56.3	48.7	E.	55.3	69.6	39.7	104.3	33.7	—
Thursday	22 30.460	62.6	54.4	E.	55.5	71.6	42.2	110.7	55.6	—
Friday	23 30.255	61.7	58.3	N.E.	56.3	79.0	45.6	117.4	39.2	—
Saturday	24 30.057	68.6	60.5	E.	58.0	81.3	50.1	118.9	44.6	—
	30.150	59.8	52.9		56.2	70.9	45.5	109.5	40.6	—

REMARKS.

18th.—A very slight shower between 5.30 and 6.30 A.M. This yielded only 0.042 in., and was, according to rule, entered to the 17th. The rest of the day fine and pleasant.
 19th.—Cloudy morning, hazy in afternoon; then clear.
 20th.—Brighter, but still somewhat hazy.
 21st.—Hazy and warmer; fine throughout.
 22nd.—Very fine.
 23rd.—Fine summer day, nearly cloudless throughout.
 24th.—Very fine and hot, the shade temperature reaching 81.3° ; lightning 9 to 11 P.M. in S.W.
 A very fine week, temperature and pressure rather above the average; very little cloud (and therefore great range of temperature), and no rain.—G. J. SYMONS.



COMING EVENTS

5	TH	Linnean Society at 8 P.M.
6	F	
7	S	
8	SUN	TRINITY SUNDAY.
9	M	
10	TU	Royal Horticultural Society. Fruit and Floral Committees at 11 A.M.
11	W	

ESPALIER APPLE TREES.



NEATNESS, economy of space, full exposure to light and air, facility of culture in training, pruning, shelter, thinning and gathering the fruit, are the chief points of excellence in espaliers; and now that the adoption of improved forms for these useful fruit trees is becoming general, there is little if anything to detract from what it must be owned are not inconsiderable points of merit. It was not always so. Fine as the crop of fruit undoubtedly was upon the old style of espalier; yet its inherent weakness of form invariably led to premature barrenness and decay in the lower branches. The vertical stem with its horizontal branches was so faulty, so clearly opposed to natural laws of growth, that it is surprising it alone should so long have been the only method of training such useful trees, and the fact of its being so may be taken as an illustration of the too common tendency to run in a groove and to take things for granted.

The modern forms which have ousted the faulty horizontal espalier from our gardens are the single cordon and palmette verrier. The cordon consists of just a single stem with the lateral growth kept pruned to form fruiting spurs, and for this purpose is invariably trained diagonally at an angle of 45°, and they are planted 18 inches apart if on dwarfing stocks, and 2 feet or 2 feet 6 inches apart if on free stocks, in order to afford ample space for spur-development, concerning which it may be useful to add one or two hints here. The development of spurs is a process requiring much care and some common sense. We should make the growth of each tree a special study, and never apply a rigid system of close pruning to all alike. Stout free growth is an indication of robust vigour, upon which it is wasteful to put undue restraint, only take especial care to have all spur wood well furnished with fruit buds, and then it matters not if the spurs are an inch or two or a foot or more long. If the latter, so much the better; for, depend upon it, if we are to have a really useful supply of fruit from espaliers we must have something more than the trim pigmy spurs to which the lateral growth is so often and so wrongly restricted. Only remember that long spurs must be kept far enough apart to admit light and air freely to the branch and all round each spur, or barrenness will soon be visible upon parts much shaded, and this is to risk barrenness all over the spurs, a hard winter often proving fatal to the outer parts, especially if the young growth is at all immature in autumn. Many spurs of espaliers suffered severely in the last two severe winters we had, some of the most robust trees losing several inches of every spur, and attention will be called to some striking examples of this spur canker farther on.

Palmette verriers, the other modern form of espalier, are compound forms—partly horizontal and partly vertical—each branch starting from the vertical stem at right angles and turning upwards vertically, so that the end of every branch is on a common level at the same height as the top of the stem. By this excellent method of training we secure an

equal distribution of vigour throughout the tree, and so long as that tree continues healthy the bottom branch is as vigorous and fruitful as the top one. If a shoot is allowed to grow untrained from the end of a horizontal branch, does it not at once turn upwards? Let, then, those who have horizontal espaliers, taking this clear hint from Nature, apply it to the trees, and convert them into palmette verriers, or, to coin a descriptive term, horizontal verticals. In doing this the branches would have to be shortened sufficiently to afford space for the vertical extension, as shown in fig. 100, page 438. It is questionable whether the whole of them should be shortened at once, or whether it would not be better to let the new growth from the two bottom branches have at least a year's start of the others, and thus become sufficiently vigorous to reach the top with or soon after them.

Of the espalier palmette verriers which I planted thirteen years ago fourteen are Apples. They have repeatedly afforded useful matter for cultural hints to readers of the Journal, and are now an interesting study individually and collectively. They form part of a large selection of choice dessert sorts made by Dr. Hogg, and the original intention was to have them on Paradise stocks; but the late Messrs. William and Thomas Osborn strongly advised me to give preference to the free (Crab) stock for espaliers, and experience, gained long previous to the planting, convinced me that I should not do wrong in listening to them. Yet, notwithstanding the vigour imparted by the stocks, three of the trees have succumbed to the attacks of canker. Pine Golden Pippin was the best and most finished specimen of them all. Its growth was remarkably vigorous, the whole of the branches being fully grown and well furnished with spurs in full bearing, the fruit being highly valued for its tender juiciness and delicious flavour; but this valuable tree is dead from canker, which destroyed the bark at the bottom of the stem at the point of union of scion and stock when it was grafted. Ross Nonpareil and Golden Reinette both had the branches so badly cankered that the whole of them are cut back close to the stems, which are so much enfeebled that they will probably have to be destroyed. I particularly regret the loss of Golden Reinette, for it is an old favourite, and its seventeen synonyms are a sure indication of its popularity both in this country and on the continent. The other trees, apart from some canker, may be described as fairly healthy and in full bearing. All of them are now setting an abundant crop of fruit.

Pearson's Plate is perhaps the finest specimen, the tree being 20 feet long and 6 feet 6 inches high. It has canker blotches scattered thinly upon the branches, and the tips of the spurs have all been destroyed by canker caused by the severe weather in the winters of 1879-80. By pruning the cankered parts the damage was got rid of, for the canker did not spread inwards, and the spurs are now apparently healthy and have been very full of blossom. Cox's Orange Pippin has been crowded with blossom, and the fruit is setting so thickly that it will probably require thinning. The tree is in perfect health and is very robust, yet the tips of the spurs have all been pruned for canker, which shows that this troublesome disease is sometimes caused by severe frost. Of many trees which I have planted of this excellent Apple this espalier on the free stock has been the slowest in coming into fruit-bearing. Others on the Paradise, also had from the old Fulham Nursery, bore plenty of excellent fruit long before it; but for early and abundant crops the palm must certainly be given to a dozen trees on Paradise stocks which I had from Messrs. Rivers of Sawbridgeworth. That delicious Apple Reinette Van Mons is well represented here by a tree even more robust than Orange Pippin; but it has suffered equally from spur canker by cold, almost all the spurs having been shortened an inch or two. It has been very full of blossom, and will probably carry a full crop. Melon Apple, of American origin, answers fairly well here and the fruit is much liked, answering perfectly to its description in the

"Fruit Manual:"—Flesh yellowish-white, very tender and crisp, juicy, sweet, and vinous, with a delicate and agreeable perfume. The tree is somewhat peculiar from the comparatively weakly growth of its eastern half, which is also much cankered and deficient in blossom. The western half, on the contrary, is remarkably vigorous, has plenty of blossom, and only a trace of canker upon two or three spurs. I have noticed this peculiarity in some other trees, and may mention a pyramidal Forelle Pear as an example of it.

Cornish Gilliflower is in perfect health, without a trace of canker, and is remarkable for its clean dark bark. It has had enough but not a profusion of blossom, and will probably set a fair crop of fruit. It is an excellent dessert Apple, coming somewhat late into bearing, for which reason there should be several trees of it. Scarlet Nonpareil has many spurs a foot in length, all well furnished with buds. I counted a dozen clusters of blossom on several of them. It has slight traces of canker, but is on the whole a thriving valuable tree. Golden Pippin is a compact little espalier, almost perfect. It has had canker on the spur tips, and there are slight traces of it upon the branches. The blossom has been crowded, and it is setting plenty of fruit.

Pine Apple Russet is a fine vigorous specimen with free

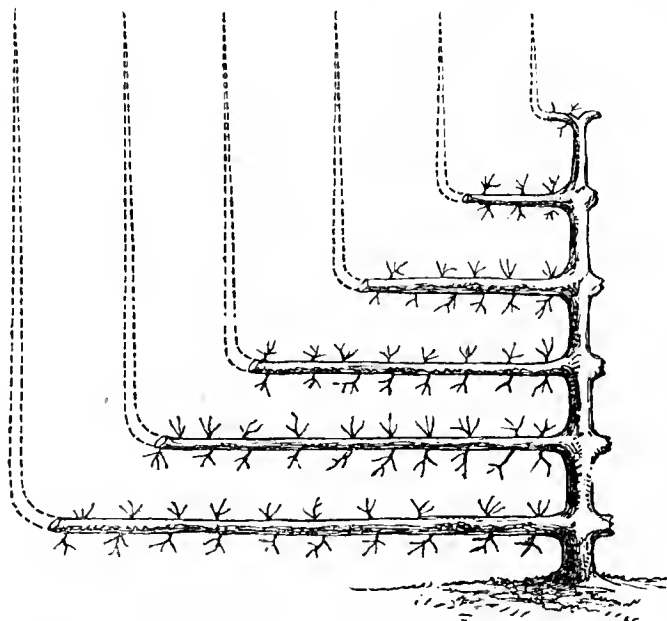


Fig. 100.—Converting espalier into palmette verrier. (See page 437.)

robust growth in branch and spur. It, too, has lost the tips of the spurs from canker, but there is ample promise of an abundant crop of its somewhat unsightly but excellent fruit. Golden Russet may be termed a nice tree, with spurs somewhat thinly disposed but with plenty of blossom. Although a large tree the growth is only of medium vigour, and it has canker blotches. Cockle's Pippin has much canker in the spurs, the tips of which have also suffered; but the stem and branches are healthy. Adams' Pearmain has much spur canker, but it has plenty of blossom. This tree came into full bearing before any of the others, and it has continued to yield full crops of fruit in every favourable season. I do not regard it as a first-class dessert Apple, but it is undoubtedly a most useful one.—EDWARD LUCKHURST.

INDOOR ROSES.

AMONGST these Cheshunt Hybrid is in my opinion nearly equal to Maréchal Niel and Gloire de Dijon for clothing pillars, roofs, or walls in cool houses. A plant budded as a standard in 1881 and planted during the following winter outside a small octagonal conservatory, with the buds just inside, has already covered a large space, and this spring has given us over three hundred of its lovely blooms. This Rose is liked here nearly as much for its scent as for its beauty. Last year, having some good pot plants of Maréchal Niel in flower just when Cheshunt Hybrid was at its best, we trained the shoots of the two together in such a way as to have nearly equal quantities of blooms of each hanging together. Neither of the two lost anything by the arrangement, but each seemed to enhance the beauty of the other. This year there is no room to admit the Maréchal into the space, or the arrangement would have been made again. As much as I like "own root" Roses I cannot advise that system of growing this

variety. With us it grows much faster on either Manetti or Briar than on its own roots.

I have been much interested by the two notes recently on Reine Marie Henriette. I have had a plant of it for two or three years growing outside trained to a wall, and I have not had a single bloom yet, and a neighbour who has grown it much longer than I have has the same experience to record. Only two or three days ago I was conversing with the foreman of a large Rose nursery, and his opinion is that this Rose is both a poor grower and bloomer. I had determined to discard it, but shall now insert a few buds in the old Gloire, of which I have a vigorous young plant on its own roots in a cool greenhouse.

I saw a plant of Gloire de Dijon a few weeks ago which I should think has few equals. Seven years ago it was purchased as an ordinary nursery standard and planted inside a greenhouse 20 feet long, with rafters fully that length. The gardener in charge said he thought the rafters were 25 feet in length, and now the entire roof is a perfect thicket of wood; in fact it is too much crowded, and the plant shows no sign of having reached its limit yet if it had more room. As our indoor climbing Roses go out of flower they are pruned and the soil removed as far down as possible without injuring the roots, and a mixture of loam, manure, and crushed bones applied in place of the soil taken away. By this means the roots are kept from striking downwards, and thus are in a position to make the most of liquid or other manures, which may be given as they require them.—T. A. B.

GERMAN IRISES.

THE broad-leaved Irises (*I. germanica*) form an interesting, beautiful, and useful class of plants for early summer flowering, and for variety and quaint form with exquisite markings are unsurpassed by any other flower of their season—May and early June; and though the flowers are not very persistent they are nevertheless suitable for cutting, for which purpose they vie with Orchids, and are far more valuable from being within the reach of everyone having a few yards of garden ground devoted to flowers. The plants are evergreen, and on that account cheerful at all seasons, their ample broad-flag foliage rendering them conspicuous objects in the borders, and not the least of their merits is that of their succeeding in smoky localities.

The German Iris will grow almost anywhere; but in the shrubbery border it makes slow progress, on account of such positions being too dry and the soil poor from its exhaustion by the roots of trees and shrubs. In the wilderness it grows well if the soil is surface-dressed with manure and kept clear of weeds; whilst on the margin of water it is effective. But to grow the plants well they require a good rich porous soil, without water lodging about the roots, for they are anything but aquatic, and any idea of their being rock plants must be discarded. I mention this because I have seen German Irises perched on rockwork, sunk in a bog, and trying to make a living as best they could in the poor soil and gloom of shrubberies. Such positions cannot show or grow these plants to anything like perfection. They like sun or an open situation, soil loamy, well manured, deeply stirred, and efficiently drained, and then we stand a chance of seeing them in the richness of their foliage and the unsurpassed loveliness of their standards and falls, rich in colour, or distinguished by exquisite markings.

Their place in the herbaceous border, masses a yard across, stand out in May or June as grand ornaments of this now popular department of floral gardening. They grow freely, are very hardy, and increase rapidly, propagation being effected by division in early autumn or early spring. Each crown taken off with a portion of the creeping root-stem will make a plant, planting no deeper than to cover with soil to the base of the leaves or just over the roots. A top-dressing around the clumps of short manure or leaf soil in early winter, pointed in early in spring, and the plants supplied with liquid manure in dry weather, with a mulching of short manure to prevent evaporation, will grow famously through the summer, and form some crowns that in due course afford a harvest of blooms large in size and full in substance. An indifferent bloom is a result of poverty, and may arise from the clumps becoming too crowded with "grass" or the creeping stolons, in which case they should be thinned and a good dressing of rich compost applied over the root-stems between the growths; or if the clumps are too large lift them, divide, and replant in early autumn or spring in well-prepared ground.

The varieties are legion, and as they have been considerably added to of late a selection is appended of those that can hardly fail to please those that have not given this class place in their gardens.

Florentina.—White both in standards and falls, being very free-flowering and scented.

Penelope.—Standards and falls white veined reddish-violet.

Albicans.—Standards and falls white, very fine; the best white.

Donna Maria.—Standard and falls white, tinged lavender, yellow beard.

Madame Chereau.—Standards and falls white, feathered and edged violet; very free-flowering.

L'Innocence.—Standards clear white, falls white veined purple and orange; very fine.

Victorine.—Standards white blotched bluish purple, falls violet veined white; good.

Poiteau.—Standards white tinged lavender, falls dark purple veined white; fine large flower.

Sir Garnet Wolseley.—Standards white flaked purple, falls crimson veined white; superb.

Flavescens.—Standards and falls primrose; large and fine.

Aurea.—Standards and falls deep yellow; superb.

Chénédolé.—Standards deep yellow; falls pale yellow, veined crimson, tinged purple.

Magnet.—Standards yellow, falls purple veined white.

Matthioli.—Standards and falls yellow, veined crimson and white.

Sylvia.—Standards deep yellow, falls velvety crimson veined yellow.

Darius.—Standards chrome yellow, falls purple margined yellow; fine.

Gracchus.—Standards lemon, falls pale yellow veined purple; of compact growth and very free.

Rebecca.—Standards bronze, falls crimson veined white and sa'phur.

Mozart.—Standards bronze, falls purplish; large.

Bossuet.—Standards bronze, falls white veined purple; fine.

Madame Sontag.—Standards lavender, falls violet feathered white.

Marianne.—Standards lavender, falls purple veined white; fine.

Bridesmaid.—Standards lavender, falls white bordered lavender.

Queen of May.—Standards rosy lilac, falls rosy lilac veined yellow.

Cordelia.—Standards rosy lilac, falls purplish crimson margined white; fine.

Pallida dalmatica.—Standards lavender, falls lavender tinted purple.

Madame Paquette.—Standards purplish red, falls rosy purple.

Vietor.—Standards purple-bronze, falls purple.

Lurida.—Standards purplish bronze, falls deep purple; scented.

Atrio-purpurea.—Standards and falls purple; free and early.

Céleste.—Standards and falls blue or deep lavender, orange beard.

Othello.—Standards and falls rich bluish purple; fine.—G. ABBEY.

GRAPE-THINNING.

YOUR correspondent "T. A. B." offers at page 380 a few hints to beginners on Grape-thinning, and so far as to getting a good set I quite agree with him; but as regards his method of thinning, as well as some of his other remarks, I hold a different opinion. To begin with, "T. A. B." does not say what size his bunches are. Perhaps they are like some of the monsters we have seen at the International Shows held at Edinburgh and elsewhere within the last ten years. Supposing the bunches to be of large size they will require some tying, otherwise I consider tying inadvisable if the Grapes are grown for the table, or even for exhibition. Take for example two bunches that are growing side by side. Tie and thin one as recommended by your correspondent, thin the other without tying. When they are ripe cut both, place them either on a fruit dish or on a stand for showing, and mark the difference. I am certain that the one which was tied will fall flat—at least the shoulders will shift, damaging the bloom, which spoils the appearance of a bunch of Grapes, no matter how good it may be in other respects. The untied bunch will lie like a ball if it has been properly thinned.

Thinning Grapes is a very important operation, and requires much experience before it can be satisfactorily accomplished. The operator should know the habit of the bunch to be thinned, such as the length of the pedicels or fruit stalks, the size of berry, &c. When the fruit stalks are long they require less thinning. A very good example is the Black Hamburg and Lady Downe's. The last-named needs more than double the thinning that the former requires. I consider a bunch has been properly thinned if after the berries are fully swelled they retain their places.

Your correspondent next recommends tying a piece of twisted matting round the stem on the lower part of the bunch for moving it as required. I am at a loss to see how the bunch can be moved after it has been tied out first as he advises. A piece of stick 6 or 7 inches long, with one of the ends formed like the letter V, answers the purpose very well. "T. A. B." also says the berries should not touch one another. I fail to see how good Grapes can be grown without the berries touching each other. This he says is a certain way to produce scalding. Scalding, so far as my experience goes, takes place when the berries are stoning. At this stage of growth, if the vine is kept quite cool and airy, there is little danger of scalded berries. I have had a few damaged, owing to having too many varieties growing in one house, otherwise it can be prevented. I have seen them scalded on the very point of the berry. So that proves that the berries touching each other is not the cause as indicated by "T. A. B."—J. J.

GILBERT'S LATE QUEEN BROCCOLI.—I notice in the *Journal of Horticulture* that my new white Broccoli is described as very much like

Cattell's Eclipse. This is an error, inasmuch as the latter has upright foliage and the head is yellow, or approaching to that colour, while the heads of my Late Queen are white and perfectly protected by its incurved foliage.—R. GILBERT.

SPECIALITIES AT READING.

THE spring Exhibition at Reading invariably attracts many visitors to the town, a large proportion being gardeners or others connected with horticulture, and to these Messrs. Sutton & Sons' seed grounds and nursery are equally as great an attraction as the Society's show. There is always one great feature at that time—namely, the Calceolarias; and this year was no exception to the rule, though the hot weather had brought them rather forward. Several houses were filled with healthy, sturdy, well-grown plants, and in one special show house a bank of flowers was formed which for brilliancy of colour and varied tints could not be surpassed. It is surprising the number of shades that have been produced by close attention to crossing and intercrossing the different types; and the markings have also been greatly varied, from the most delicate lacing to the heaviest solid blotches of colour, which stand out boldly upon yellow, cream, and white grounds. In some, too, there is a combination of spots with a regular netting, and in others the light grounds are replaced by a pale rosy crim-on colour, upon which the spots and lacing are strongly marked in a darker shade. The flowers, too, are of good size without being coarse, even, well-proportioned, and full, mostly in compact heads just above the foliage, so that they can be clearly seen. Very prominent amongst them was the handsome yellow self Cloth of Gold, which is wonderfully effective and true. Of the other colours the following will give some idea. Cream grounds with deep crimson spots and veins, rich crimson blotch, crimson-purple dots suffused with the same colour; white grounds with crimson and rose dots; yellow grounds with deep red marbling, crimson netting, bronze netting very handsome, and dashed with maroon; while of selfs, puce, bronze-red, cinuabar, crimson, rose, a bright reddish scarlet, creamy rose, purple and maroon are all represented with many intermediate and indescribable shades.

Gloxinias were not at their best, as it was too early for them, but a few typical varieties were in flower which indicated the value and beauty of the strain. Several very pretty forms have been obtained in which the colouring is very clearly defined, either with a white throat or a white margin round the lobes of the corolla, the colours in the latter case being arranged in crescent-formed blotches. Intensely rich as well as most delicate and soft shades have been secured from white through pink to bright red, crimson, and purple. One group of white-flowered varieties, some of which have lemon-coloured tubes, have been raised from a cross between Avalanche and Boule de Neige, and will undoubtedly become popular, as they are very free, sturdy in habit, requiring no sticks, and the flowers are large, pure, and symmetrical. The erect-flowering type is the favourite, the foliage elegantly recurving, and in many cases quite concealing the pots. The drooping-flowered varieties are useful for baskets or suspending from the roof of a house, but when on a low stage their beauty is lost.

Tuberous and other Begonias of the *B. semperflorens* character, it is well known, have for some time engaged the attention of this firm, and several useful strains have been obtained, not the least of which is Snowflake, a pure white, dwarf, and profuse flowering sort, which is most valuable for decorative purposes. A fine hybrid has also been raised between *B. Schmidtii* and *B. semperflorens rosea*, in which, curiously enough, the pistillate flowers are pink and the staminate flowers white, which have a curious but pleasing appearance on the same plant. In habit this is exactly intermediate between the two parents, and more compact than *B. semperflorens* and stronger than *B. Schmidtii*.

Many features might be enumerated; for instance, the Alpine Auriculas, of which a beautiful strain has been gradually developed, and either for culture in pots or borders many of the seedlings are not inferior to named varieties. The charming *Freesia refracta alba* is also grown in large numbers, its pure white fragrant flowers being much appreciated. Of the outdoor flowers the prominent plants thus early are handsome strains of Wallflowers and Stocks, of which an extremely dwarf type has been raised, forming dense bushes of flowers 8 or 9 inches high and from 1 to 1½ foot in diameter, most varied in colours. Enormous numbers of annuals are tried every year, a great space of ground being devoted to them, and the merits or defects of everything is thoroughly tested before distribution.

SPRING AND EARLY SUMMER-FLOWERING HEATHS.

ONLY a few years ago a collection of greenhouse plants was considered incomplete without a number of Heaths, but unfortunately of recent years they have been almost entirely discarded from private gardens, and at the present time their cultivation is confined to those who grow plants for exhibition. It is probable, however, that they will again occupy a prominent position in gardens, and what plants are more deserving of general cultivation? During the spring and early summer months they are unsurpassed for the decoration of houses that have to be kept gay with a number of flowering plants. The cause of these not being grown is neither the want of skill nor accommodation, but the large and increasing demand upon the gardener for cut

flowers; and to meet this, Heath cultivation has been discontinued and other plants grown which yield a larger return in less time. Judging from the questions asked and answered in the pages of the *Journal*, I believe the tide is rapidly turning in their favour, and information regarding their culture may prove acceptable to many readers.

In commencing their cultivation dwarf bushy young plants should be selected. It is important that the plants be of free growth and healthy, and not kept in small pots long enough to become unduly root-bound. Young plants that have become checked from this cause are a long time before they recover. These plants are generally obtainable in 5-inch pots, the usual trade size, and those should be selected that have become established in that size, for they are much better to start with than if they had been kept the greater part of last year and then wintered without placing them in larger pots. Plants of this description should be grown on in a cool airy greenhouse or in a cold frame, but cold draughts must be avoided, and the pots should stand upon gravel or some moisture-holding material. As soon



Fig. 101.—*Erica speciosa*.

as the plants are secured it must be decided whether they are to flower the following season or be grown on into a larger size before being allowed to flower. When required to flower, their progress towards making specimen plants will be slow compared with those grown for the purpose without flowering.

To grow the plants into a large size as quickly as possible do not keep them in a close confined atmosphere, but give abundance of air when the weather is favourable, and the growths made will be sturdy. As soon as the 5-inch pots are fairly well filled with roots without being overcrowded, which will be the case by the middle of July, they should be transferred into 7-inch pots. Two or three weeks afterwards the roots will be advancing freely in the new soil, and the strongest shoots, or those that are taking the lead, should have their points taken out and then tied outwards, bringing them towards the rim of the pots to form the base of the future specimen. If the plants are healthy these stronger shoots will produce a number of growths. After they have been tied out, if any shoots take the lead they should be pinched to throw the strength of the plant into the weaker shoots, and thus keep the whole well balanced. They must not be stopped after the end of August or early part of September. It may be mentioned that *Erica Cavendishiana*

is naturally of upright growth, and should not be allowed to lead away with two or three strong growths, or the base of the plants will be weak and the future specimen ruined in its early stages. Particular attention is needed with this variety in keeping its shoots well stopped to compel it to form a bushy habit, for if allowed to grow unchecked it will need cutting back; and this is a waste of time when growing the plants into specimens. This variety, which is one of the most beautiful and useful, requires more care in its early stages in this respect than any of the *E. ventricosa* section. The young plants should be kept under cold frame treatment all the season, as they will do better than if stood outside, but free ventilation should be given. During September and October they must be placed in a light airy position in the greenhouse.

The winter treatment is simple when they are given a good position. They must not be started into growth by fire heat. Keep them as quiet and cool as possible until the end of the year, only turning on the heat to exclude frost or to expel damp during dull bad weather. After the middle of January the house they occupy should be kept as near as possible about 45° at night, which will gently excite the plants, and they will commence activity earlier than would be the case if kept cooler, thus giving a longer season's growth the second year. To maintain the temperature named employ fire heat only when absolutely necessary, for nothing is more detrimental to Heaths than dry heat, from whatever source it may be derived.

As soon as the plants have commenced rooting freely in early spring examine them, and if the soil in the 7-inch pots is moderately well filled with roots transfer the plants to pots 2 inches larger. Whether the plants require potting or not depends upon their condition and the growth they made after the second potting the first season. If not sufficiently well advanced they should not be potted, but may be left for a month or two longer. When well rooted they may have a 3-inch shift instead of being potted a second time. This is preferable, and the plants will do better if the grower knows when and how to water them. Heaths in their early stages require liberal root-room, and too many are ruined through being kept in small pots when young, for they lose their lower foliage and become stunted. These plants can, after the second year, be allowed to grow without stopping or potting for flowering the following spring and summer if required, or they can when ready be placed in pots 2 inches larger and grown a third year without flowering if healthy large specimens are desired.

When required to flower, whether the first, second, or third year after they are purchased, they must be grown on an entirely different principle and the wood thoroughly ripened. It is wise when numbers are wanted in flower to divide them into two batches, and grow one lot specially for flowering and the others as specimen plants before allowing them to flower. The winter treatment for both is exactly the same, but in spring the plants to flower should grow without being stopped. When in active growth should have abundance of air, and from the month of August must stand outside to ripen and harden their wood, or better still, occupy frames or a temporary house where they can be protected from heavy rains and storms.

Staking and tying demand more attention than for the winter-flowering varieties, but not when the plants are required for home decoration. At first only a few short stakes are needed to bring the shoots down to the base and to regulate their growth; but when they attain a larger size more stakes will be needed, but the pots should not be crammed full, as is too often the case. The tying should be done with dark thread, which is less visible than matting, and the Heaths when finished have a neat appearance. It may be mentioned that *E. Cavendishiana* is a sturdy grower, and if properly managed will neither want tie or stake, and the *E. ventricosa* family will not require half so much tying or staking as the *E. tricolor* section. Many others are worth growing, including those represented in the figures, which show that the diversity in form is as marked in the varieties as the dissimilarity in colour.

The potting, watering, shading, and general treatment should be exactly the same as that recommended for winter flowering varieties, but in no stage or condition should they be weakened by a close warm atmosphere, which some of those that flower during the winter will enjoy. To achieve the greatest success a cool system of cultivation must be practised, but cold draughts on all occasions must be avoided. It may be mentioned that mildew is the greatest enemy to these plants, and must be watched for carefully during the winter months, and destroyed at once if it appears, as advised on page 298.—W. BARDNEY.

It is strange that these beautiful hardwooded plants are not so generally grown as they deserve to be. We seldom meet

with them in any quantity in private establishments, except when grown for exhibition, for which they are invaluable, comprising as they do nearly all colours and shades, from the purest white in *E. jasminiflora alba* to the rich vermilion scarlet of *E. cerinthioides coronata*, *E. Eweriana superba*, and the bright yellow of *E. Cavendishiana*. These plants ought to be grown in a light airy house—in fact, except in very severe weather the house ought not to be closed. They ought to never have fire heat except to just exclude frost, or to exclude damp during a



Fig. 102.—*Erica cerinthioides*.

continuation of dull autumn weather to prevent mildew, to which they are rather subject, especially the close woolly varieties, such as *E. æmula*. It is a good plan to put most varieties outside, fully exposed to the sun, when they have flowered and have started growing, as it hardens the growth, and they are more able to resist the attack of mildew.

The last potting for the season may be early in August. The pots to be used should be quite clean and carefully drained with clean crocks. Being slow-growing plants they do not require potting very often—a shift every two years after the plant passes a 6-inch pot until it is in one 12 inches or 14 inches in diameter, after which it will not require potting so often, always taking into consideration the variety. If it is free-growing, such as *E. ventricosa* and its varieties, it will require potting oftener than the slow-growing *E. Marnockiana*. When potting, if the plant is in good condition, it is best to give it a good shift, so that a rammer can be used between the soil and the side of the pot, as the soil can then be made firm without injuring the roots. Rammers slightly curved are the best for this purpose (ash if tied to the desired curve when green and well seasoned makes good ones). The use of this curved rammer is to keep the hand away from the plant, as *Ericas* when trained project over the edge of the pot. Two straps about 3 inches wide are very useful when potting large plants to let the ball down into the pot, and if it should not be of the required depth to raise it again. Avoid deep potting—just cover the old soil.

The soil should consist of good, rather hard, fibrous peat,

picked to pieces as large as can be used, the fine being refused, mixed with silver sand and charcoal broken small. Do not use spongy peat, as it retains moisture too long. After they are potted they should be kept rather close and shaded, and have an occasional dewing with the syringe for a week or ten days, and afterwards gradually diminished. I ought also to have said they should not be dry when potted, nor in the opposite condition, but fairly moist, and they will then stand a few days without water if large plants. They may safely be stood outside early in September and remain until October. When *Ericas* are outside at any time, whether fresh-potted or not, always have two empty inverted pots to each plant to lay them down on in case of rain.

Watering is rather a difficult part of the culture of these plants. One man only should attend to them, as he will get to know the ring of each pot and the requirements of each plant. Hard-baked pots (which are best) do not ring so much as soft porous pots, and when in the former less water is required. During summer it is much easier to err by giving too little than too much; they should never be allowed to become very dry at any time. Always give enough water to thoroughly soak the ball, whether the pot is filled once, twice, or thrice. Another point to mention is that the free-growing sorts and plants in good condition will take water oftener than slow-growing sorts, or plants that may not be in good condition. If they are grown in a span-roofed house with east and west aspects they require very little shading, except during the middle of the day; but if



Fig. 103.—*Erica infundibuliformis*.

the aspect is south they will require more shading. In training use as few stakes as possible, taking thread from one stake to another, and looping up a shoot every 2 inches. The stakes should not be put into the soil too far, and should be renewed every year or two at the most, as they are apt to decay at the surface of the soil, and then it is difficult to remove them.—J. GORE.

SYRINGING VINES.

AFTER reading Mr. Waiting's letter on the above subject (page 409) I feel inclined to differ from him in syringing Vines in flower, as I have found from experience that the flowers of Vines are benefited by a gentle syringing, properly applied early on a bright morning, especially in the case of Muscats and other sorts that are apt to exude a superfluous quantity of viscid matter from the stigma. I am of opinion that the cause of Grapes not setting is often the result of the "baking process" that some persons think so necessary. A plant in a pot which can be watered freely if the drainage is good is, I consider, analogous to a Vine in flower in respect to moisture if ventilation is perfect. Perhaps this may seem rather a bold statement to some, and I admit that it is a mode of procedure that requires care, but if we wish for good results close attention must be given to whatever the charge may be. In syringing Vines in flower the chief point is to evaporate the excess of moisture from the flower before stagnation takes place, which would result in the decay of

the pollen grains. Properly applied, and as properly removed by efficient ventilation, it leaves the embryo fruit in a clean fresh condition.

Mr. Waiting evidently has not had much experience with thinning such sorts as Lady Downe's and Alicante, or if he has he would have found it very beneficial to give them a gentle syringing with perfectly clean tepid water to remove the refuse that accumulates in the bunches of these close-berried sorts to prevent rusting.—C., *Dorset*.

GROWING PLANTS IN TURF.

WHERE pots are not easy to be obtained, which is often the case either from being a long distance from a pottery or to the garden expenses being limited, some other method must be adopted. We have a method in practice here which answers admirably for Pelargoniums or almost any other bedding plant. We strike our cuttings in boxes 2 feet long by 15 inches wide, and about 2 inches in depth, where they remain till the middle of February. In the meantime a number of turves are taken off about 3 inches in thickness, 16 inches square, which are each cut into sixteen small squares of 4 inches. A kind of basin is made in the centre of each piece with a knife or the point of a small trowel. The plants when ready are shaken out from the boxes and inserted in the basins and made up with suitable soil. They are then placed in a shallow pit, which has a flow and return pipe round the front, and being on a cold base they require but little water for some time. In about a month from the time of being placed in the pit the plants will be rooted through. From this they are moved and turned about once a fortnight and watered freely, although they never suffer so much from drought as when in pots, especially when small pots are used. In the turf they receive no check at all when planted. There is no further trouble than to place them on the hand-barrows, take them where they may be wanted, and plant them out; besides, there is no collection of pots afterwards, which is an object also when many thousands of plants are bedded out.—J. H.

"VEITCH'S ORCHIDS."

"HAVE you seen Veitch's Orchids?" This for years has been one of the most familiar of interrogatives alike by those who have seen them and been satisfied, also by persons interested in these gorgeous flowers who have not seen the collection in question, and hence like to have the opinions of others who have had the privilege of an inspection. There is something to see that is worth seeing in the famous Chelsea establishment at all times, but never before was such a sight to be seen as now.

A short time ago reference was made in these columns to a new Cattleya house that was then in course of erection by Messrs. Weeks—a span-roofed structure, 135 feet long by 22 feet wide, proportionately lofty, and with a lantern roof. This splendid house is not only completed but occupied, and in such a manner as to strikingly display the resources of the nursery, and to present a spectacle that may fairly be described as unequalled.

Except a gorgeous mass of *Odontoglossum vexillarium* in one corner, the whole of the space is occupied by Cattleyas and *Lælias*; the central stage rising tier above tier, and the side stages all round the house, are filled with these plants. How many hundreds or thousands there are he would be a bold man to guess, and still less could he hope to convey any adequate idea of the effect of the countless flowers as they were seen a few days ago, with countless buds in various stages of development. It can only be stated that the house was, and still is, full of flowers, and each reader must endeavour to realise for himself the richness of the extraordinary display.

As might be expected at the present time, the varieties of *C. Mossiae* are by far the most numerous, and these alone are gorgeous, the dissimilarity in the forms affording gratification for individual tastes, the richer colours and chaste and delicate tints being abundantly represented in plants of different sizes, but the majority handy portable examples, flowering freely in 5 and 6-inch pots. But in addition to these, grand examples and charming varieties of *C. Mendeli* attract, as they ever must do, attention and evoke admiration. These are relieved by several forms of *C. intermedia* and the more imposing *C. gigas*. One specimen of this will soon have nearly thirty flowers expanded, as buds are bursting from the sheaths in all directions, and suspended from the roof a magnificent variety of *C. Acklandiae* is remarkable by its large flowers and richly barred sepals.

Lælias contribute effectively to the beauty of the structure, many examples of the deservedly popular *purpurata* being covered with flowers of great purity of limb and richness of lip. There are many forms of this good Orchid, exhibiting variations both in the size and colours of the flowers, but not one, it may safely be said, that is not worthy of the place it occupies; and, growing on a block, *L. majalis*, with its large and charmingly pencilled lip, was one of the gems of the house.

But apart from the beauty of the flowers, the clean and healthy condition of the plants cannot be overlooked. "The house suits them," remarked the skilful grower modestly. The house is no doubt going to answer admirably the purpose for which it was erected, but the attention the plants receive evidently suits them too. As was remarked by a visitor, a keen-eyed critical Orchid grower, who knows what he is about, and is the reverse of effusive, "A finer lot of plants I never saw; in fact, I cannot see how they could be better." They are in truth about all that the most

exacting could wish, and more than would be expected by many, for numbers of the plants established so firmly, growing so strongly, and flowering so freely, only arrived as imported pieces, rootless and shrivelled, ten months ago.

Another circumstance in connection with this remarkable collection of Cattleyas worth notice is that the whole of the plants have been "thinned out" of the other houses in the nursery without leaving any apparent blanks on the stages. All the other structures are still full—quite full enough—and the specimens must be all the better for the additional breathing space afforded; at least, they have room for sturdy development. In passing from house to house and seeing them all furnished, it is a matter of surprise that they have been capable of holding so many more, and the fact suggests that Orchids are elastic in their nature, yet it is conceivable that the most expert packer would find some difficulty in restoring the plants that now are so imposingly arranged in the great house above noticed to their original places again.

It has been said that all the original houses remain full, and it must be added that there is something to attract in each, not by the splendid condition of these plants alone, but by the beauty of the flowers. There has been no attempt to gather all the flowering specimens together and arrange them in one house, in fact there is no house large enough for this; but the several houses in connection with the agreeable "break" of an artistic fernery form one long promenade of Orchids that astonishes by its extent, diversity, and beauty.

The *Odontoglossums* are an exhibition in themselves, and a most charming one. It is quite impossible to give any idea of the number of spikes which arch over long stages, forming an avenue of elegance such as no other plants could produce. The varieties of *O. Alexandrae*, too, will bear close individual inspection, for the flowers are as fine as can be imagined, and the tints as varied as can be conceived. Numerous other species are also represented. Then there are *Dendrobiums* yet lingering with *Saccolabiums* and *Cypripediums*. Something, in fact, to arrest attention at every step and turn, the whole showing how great is the demand for Orchids since such a supply as this has to be maintained.

Orchid-growing is spreading as the simple requirements of the plants are becoming better understood, and as large and ever-arriving importations enable the popular kinds to be distributed at prices that are the reverse of prohibitive. Many persons fail, no doubt, in establishing a collection by attempting what they cannot achieve. "Cheap batches" at sales are often dear in the end to the inexperienced. These should be left to fanciers and experts, of which there are so many who possess the skill and the means of bringing apparently dead plants to life, and who are willing to watch anxiously and wait patiently for the expansion of some hoped-for novelty, those that are inferior being returned from whence they came. The great majority of persons who desire to grow Orchids will act wisely, and in the long run economically, by procuring thrifty established plants of proved varieties to begin with, as these are easy to manage, and beyond question the most likely to give satisfaction.

So tractable are these plants that, intelligently managed, splendid specimens of the grandest varieties may be grown in a vinery; in fact, it is questionable if finer examples of culture have ever been seen than some that were grown in tubs in a vinery near Leeds, and exhibited by the cultivator, Mr. Temple, a few years ago, and described at the time in this Journal by Mr. John Wills, who ought to know, and does know, good Orchids when he sees them. Those in the great collection under notice are eminently worthy of a visit now by all who are interested in the aristocrats of the floral world.—INSPECTOR.

APPLE TREES FOR ORNAMENTAL PURPOSES.

THIS subject seems to have engaged the attention of planters lately, and certainly some varieties of Apples are very beautiful when in flower, and deserve to be used more than they have been for ornamenting landscapes. They flower a considerable time before the trees generally used for that purpose, and there is besides a chance of obtaining a quantity of fruit from them.

The most beautiful variety I know of when in flower is the Costard, also called Catshead by some, but a very different Apple from the Catshead of the "Fruit Manual." This has flowers of a beautiful deep rose colour, and being a large-flowered variety it has a telling effect at a good distance. It appears to be vigorous-growing when young, and forms a large spreading top. A tree in the gardens here has a top 40 feet in diameter, and in 1881 bore 9 cwt. of fruit, most of which sold for 10s. per cwt. Other varieties useful for their cropping qualities, and also very pretty when in flower, are Golden Noble, Sugarloaf Pippin, Manx Codlin, Wellington, Penny Loaf, Siberian Crab, &c.; also Bess Pool and Court Pendu Plat are very useful, and as these two flower much later than most varieties they have a better chance of escaping the late frosts. The former is fully a fortnight later here this year than most other kinds, and on May 24th was not fully open.—W. H. DIVERS, *Burghley*.

CORNISH HORTICULTURE.

HAVING given on pages 384 and 425 of the Journal a brief *résumé* of exotic plants in connection with Cornish horticulture, it will not, perhaps, be inopportune to make a few statements concerning the important item of vegetable culture as adopted in this county. The abstract principles of gardening probably do not materially differ in one part of the kingdom from another; but various and important elements render certain means most essential to secure particular or special ends. In Cornwall the most important element is unquestionably a climatal one. The south side of

the county is warmed during winter by a marine current that reaches it from the Gulf of Mexico or the Gulf Stream, and at that time the sea is 4° or 5° warmer than the land. The seasons may be said to be some weeks more advanced there than in the north of Italy, but generally agreeing with Naples. This advantage lasts until the end of March. From the early part of May onwards Cornwall loses all its premature gains, if compared with those counties which are as cold or colder in winter but considerably hotter than this county in summer; and it is a well-known fact that trees are often in leaf in the vicinity of London quite two weeks in advance of those in Cornwall, and other vegetation shows a similar precocity. Another distinguishing feature is that we have no summer which brings with it a solar heat equal to that of the midland counties, and to this very circumstance must be assigned the fact that, whereas in the northern counties of England Grapes frequently ripen in the open air, they are here rarely found to form any fruit whatsoever. In short, from its geographical position and physical configuration the westernmost part of Cornwall possesses climatically the advantages and drawbacks of a small island.

Practically speaking, West Cornwall is one vast market garden, the two important crops being Potatoes and Broccoli. Early Potatoes were first sent out from the Penzance district about the year 1820. On investigating the subject I find that the first, or nearly the first, lot which reached London was in 1828, being conveyed thither *via* Falmouth by the Dublin steamers. Even then the quantity exported was exceedingly small. According to Mr. Courtney's "Half a Century of Penzance," "a new business was added about 1838, and it began in this way. Mr. Drupen, the steward of the 'Herald,' and afterwards of the 'Cornwall' steamer, which went from Hayle to Bristol, took up to the latter port some early Broccoli, and they sold so well that he continued his adventure season after season. Of course this did not escape observation, and others tried the experiment, so far succeeding that they carried their trade to London and far into the midland districts of England. The trade in Broccoli and Potatoes gradually increased as facilities for sending them away became more fully developed, and now [1878] above 2000 tons of Broccoli are disposed of yearly." New Potatoes were first sent direct to London about 1838, of course in very small quantity only. Where the rateable value of even the largest growers' produce at that time would only be a few pounds, the crops of some of the present-day growers are worth at least several thousands of pounds.

The ground utilised for Potato and Broccoli growing is rarely without either one crop or the other for more than a week or two during the whole year, and that short interval is usually immediately after the last cutting of Broccoli is made. In order to manure and otherwise prepare for the planting of the Potato crop, the preparation mainly consists in removing the Broccoli stumps, which are usually carted to a heap to form a rich vegetable fertiliser, and in levelling the surface, after which a liberal dressing of stable dung is applied. The time of planting Potatoes is of course governed greatly by several circumstances, but principally by that of the weather. In one or two instances I have known them to be planted in a warm sunny situation in November and to produce fair-sized tubers in February or March, but such cases are indeed few and far between. As a general rule planting commences in February, and is in full swing by the middle of March. Alleys of a spade's width and 2 or 3 inches in depth are formed, the sections of the tubers placed at distances of about 1 foot apart and then covered with soil, the excavation necessary to the latter process forming the next alley. The whole is performed with astonishing rapidity. It may be here remarked that rarely is a tuber placed in the soil whole unless very small. It is generally separated into as many divisions as there are "eyes," varying from two to four, or even five. They thus go such a considerable distance in excess of those planted whole, and if the results of both methods are compared, the former plan will be found by far the most economical and the better of the two. Under favourable circumstances drawing or digging commences in the latter part of May and continues in full force until midsummer. The Potatoes are separated into sizes, the third, or very small-sized ones, being usually given to pigs. The large ones and the middle-sized tubers are packed and sent to market in baskets, locally known as "half-bushel mawns," each containing about twelve gallons and weighing rather over a hundredweight. A Cornish bushel consists of twenty-four gallons, or three times the quantity of an imperial measure. The line of carts, waggons, &c., awaiting at the siding near Penzance to be unloaded during the height of the season often reaches nearly a mile in length. So soon as the Potatoes are dispatched and the haulm cleared off the ground the planting of Broccoli becomes a matter of paramount and immediate importance. The operation is, when possible, done during cloudy, damp, and even very wet weather. When the ground is very dry, and rain a remote contingency, the roots of the young plants are bodily immersed in a pan of water immediately before being placed in the soil. Broccoli are obtainable nearly the whole of the year round.

The culture of other vegetables has of late years occupied the attention of market growers to a very considerable extent, Radish and Asparagus more especially. Of these two the last-named is the more profitable, although a few years since handsome returns were frequently made for Radishes. At Scilly the crop is still, I understand, a fairly lucrative one. Good crops of both vegetables in the sandy soil of many parts of Cornwall can scarcely be surprising. One winter, a few years ago, Parsley fetched the most unusual sum of 2s. 6d. and more per pound, and those who had plenty naturally made a good deal of money out of it. The following spring more seed was sold and sown than was ever known before; but the produce brought little or no money, and the experiment was therefore an entire failure. Crops of vegetables sometimes realise

large and altogether unexpected returns, but the supply almost invariably exceeds the demand of the succeeding season. Onions and early produce of Dwarf French Beans are at times very saleable, as are also a few of the more popular herbs. Cucumbers, when forced early, have realised very large sums of money, two or three market gardeners in the district of Penzance having each several specially constructed houses for their sole culture.

The importance attached to fruit-culture with a commercial aim has, until the last few years, been of a very secondary consideration. Orchards were, and are still to a lamentable degree, almost entirely neglected, little or no training or pruning being done. There are scores of acres of orchard ground which undoubtedly prove a source of income to their owners if but a small amount of culture were expended on them. A number of the trees are covered with moss and lichen, and many more never, under the most favourable circumstances, produce fruit—in short, as a whole the Cornish orchards need a thorough and complete renovation. Several exceptions to this general rule could, however, be named. In the more highly cultivated orchards Raspberries are almost invariably grown, and in a most satisfactory manner both culturally and commercially. One grower—Mr. W. Thomas, Gulval—alone sends to various markets several hundredweights daily throughout the season. They are packed in a heap in large tubs. This fruit, as well as Gooseberries and Currants, are pretty certain to yield a fairly good crop. It is quite different with the Apple, which, although it generally flowers freely and well enough, the early spring winds do a great amount of damage, and short crops are the rule rather than the exception. Much of this mischief, I contend, would be obviated if a certain few precautions were taken. Strawberries have for a number of years been grown more or less extensively, and are generally a paying crop, particularly the very early and the extra late kinds. Those known as "wall fruits," such as Peaches and Nectarines, are scarcely ever produce anything. As I have previously stated, Grapes cannot be brought to bear in the open air in Cornwall, although I have tasted fruit grown against cottages in North Norfolk. It is scarcely necessary for me to detail the various cultural methods employed for each individual crop.—WILLIAM ROBERTS.

VINES BLEEDING.

"JUSTITIA" must read my notes again, and then his own. His belief, doubts, statements and incredulity, and threat of a visit puzzle me. If my short notes on the above to "Journeyman" puzzle him, surely no visit would enlighten him. The Vines were fruited last year, and formed a perfect chain from the top to the bottom. Scores of people saw them. Those that bled this spring and cast the fruit surely cannot be expected to overlap each other this season.

I still maintain that water is the chief cause of bleeding, whether the roots are deep or not. Debility in the Vines no doubt assists, but is not the cause. Let "Justitia" water a Vine when bleeding, and see the result.

Light has no doubt very much to do with the success of the Vine on a back wall. One of mine had eleven bunches on one side next the south-east end. The front Vines are 5 feet apart, pruned on the short-spur principle. Those on the back wall were planted between them, and young Vines are now planted between the front ones.

I give three years' average of bunches from four Vines on the front. One Black Hamburg, 35, 51, and 36; two improved ditto, 43, 42, and 28; three Mrs. Pince, 36, 22, and 26; four Muscat Hamburg, 28, 39, and 22.

"Justitia" no doubt was staggered by the number and weight of the bunches. I computed the weight; as we do not use either scale or measure here no doubt I might err a little. I have been lifting the outside roots, taking out two old rods, and carrying up new canes, and this may account for the variation, but I always manage to secure a very good crop.—J. E. WAITING, *Grange-over-Sands*.



ROYAL HORTICULTURAL SOCIETY.—Messrs. Kelway & Son, Langport, propose making a large display of DOUBLE AND SINGLE PYRETHRUMS AND PÆONIES at the meeting at South Kensington on June 10th, remaining on view for a fortnight.

—TEMPERATURES.—Could any of the readers of your valuable paper kindly give me the mild night temperatures of the following houses should be kept at during each month of the year? Specimen stove, East Indian house (Orchid), Dendrobium house, Cattleya house, Odontoglossum house, propagating house, and Eucharis house.—G. G.

—In our report of the Floral Committee of the Royal Horticultural Society on page 430 Mr. Knox was credited with exhibiting Pansies. The flowers in question were exhibited by Mrs. Owen Knox,

and well merited the vote of thanks that was accorded for them, as they were extremely beautiful and much admired.

— THE first Show of the BEDFORDSHIRE HORTICULTURAL SOCIETY is announced to be held at Bedford on July 16th. As we have not received a schedule we are unable to refer to the prizes, but we are informed that "those for the Roses are open to all England."

— WE are informed that the VINES AT LONGLEAT, which became celebrated under the superintendence of Mr. William Taylor, are not likely to degenerate under the charge of his successor, Mr. Pratt, but, on the contrary, the crop this year is of unusual promise, the Vines being laden with splendid bunches, quite equal if not superior to the fine examples of previous years.

— MR. STEPHEN CASTLE writes to us as follows on SINGLE DAHLIA SCARLET GEM—"Among my small collection I had a few of the above, and though only in 60-size pots the plants showed flower buds, so I planted two in a cool vinery. A gem it is, and I believe for culture in pots is likely to be very useful. I cannot speak too highly of this variety for its early flowering and splendid colour, and should imagine there would be no difficulty in having a blaze of bloom in May."

— THE same correspondent also observes:—"I regret to say that from six dozen pyramid Pears which were a wealth of bloom we shall not have a Pear, the frost coming just when the trees were in their beauty. We had 10° of frost one morning, which completely crippled them. Apples also on the north-west sides of trees are bare of fruit; Cherries also are very thin; Gooseberries very plentiful."

— DR. PATERSON, Bridge of Allan, N.B., sends us flowers of an extremely fine CYPRIPEDIUM CAUDATUM, with petals 2 feet 3 inches long, one of the best we have seen. A wonderful branching spike of Aerides Fieldingi was also sent, bearing a large number of highly coloured flowers. The main branch was 1 foot 9 inches long, another 1 foot, and a third 9 inches.

— THE LATE MR. JAMES DAVENPORT.—We regret to announce the death, on the 28th ult., of Mr. James Davenport of Droylsden, one of the oldest of the Lancashire artisan botanists. In another month he would have attained his eighty-fifth birthday. For about forty years he had been connected with the Manchester Botanists' Association, of which he was the oldest member. A correspondent who was a pupil and friend of Mr. Davenport informs us that "he worked for upwards of three-quarters of a century, spent it in the cause of horticulture, having been apprenticed at a very early age with a firm of nurserymen at Liverpool. In his younger days he was most enthusiastic as a Pine and Cucumber grower. Thus has passed away at an honourable age one of the best gardeners of his day, a thorough botanist, and one of the chief originators of the popularity of Fern-growing in this country, he being known in the Manchester district as the 'father of Fern-growers.'—J. W. M."

— WE have received the schedule of prizes of the LOUTH FLOWER SHOW, which is to be held in the grounds of Joseph Bennett, Esq., Louth, Lincolnshire, on July 17th and 18th; and observe that in the open classes for Roses that three prizes—namely, £10 10s., £3 3s., and £2 2s., are offered for forty-eight varieties, but subject to the conditions that "unless there are five competitors no second or third prize will be given, and unless there are seven competitors no third prize will be given." The schedule contains 168 classes. Poultry and bee shows will be held in connection with the Exhibition.

— FRUIT PROSPECTS IN CO. MEATH.—"J. P." writes:—"Although the winter has been exceptionally warm we have a very late spring, consequently the fruit should have a good chance. Apple trees are just blooming; the flower is very healthy, strong, and plentiful. Pears are not quite so good, but a fair sprinkling has set on most kinds. Plums are plentiful. Bush fruits are abundant, especially Gooseberries. Strawberries are now white with flower. Peaches, Nectarines, and Apricots are out of the question here; however, we have good crops inside. With a continuation of fine weather I trust we shall have a good supply."

— MESSRS. ANT. ROOZEN & SON, Overveen, Haarlem, send us some extremely handsome blooms of double ANEMONE CORONARIA, representing numerous distinct and prettily coloured varieties. A few of the best are the following:—Beauty, white, with mauve streaks;

Mary Stuart, scarlet and white, purple centre; Reine des Beautés, white, with red streaks; Dame d'Honneur, white, with red streaks, very pretty; Jeannette, bright scarlet, very rich; President Grant, scarlet, white centre; Lord High Admiral, scarlet, white centre; La Delicatess, white or yellowish, with a few streaks; Le Vesuve, rich scarlet, very bright, lighter centre; Prince Oscar, blue-mauve, darker centre; Duchesse de Lorraine, rosy crimson, centre white; Duke of Buccleugh, bright red, white centre; Columbine, white, streaked with pink; La Fidèle, white, with blue streaks; L'Incomparable Rubens, deep crimson, white centre; Rosette, white, with pink centre; and Goethe, white and rose. All were very pretty, and the contrast of colours most pleasing.

— THE finest BROMPTON STOCKS that we have seen for many years were exhibited by Messrs. Veitch & Sons at South Kensington last week. They were arranged in a group of cut flowers in which bunches of Aquilegias, Pyrethrums, &c., were prominent, and in recognition of their merit and the effectiveness of the arrangement a silver Banksian medal was awarded. Though all the flowers were superior, the Stocks were especially commanding by the massiveness of the spikes and the large double crimson-scarlet flowers. Brompton Stocks appear to have been too much neglected of late, and it is gratifying to see that the old strain, plants of which were the pride of so many gardens thirty years ago, is not extinct. This variety has no superior, if an equal, in the family to which it belongs. It is one of the finest ornaments for gardens during the early summer months, and well-grown plants in pots are also splendid for conservatory decoration earlier in the season.

— THE Postmaster-General has issued instructions for packing articles for transmission by parcel post. The following refers to PACKING FRUIT—"It is indispensable that fruit, especially as the season advances, should be packed securely in tin boxes with tightly fitting lid, and in such a manner that the juice may not exude. Much damage is done to the contents of mails from neglect of this precaution, and much disappointment to both the senders and recipients of fruit parcels is occasioned with a little care and forethought would prevent." He further reminds the public on packing generally that the main object of careful packing is to prevent the article packed moving to and fro in its box or other receptacle during transit.

— FROM a series of remarkable articles by Professor Leone Levi in the "Leisure Hour," on the income and expenditure of the British people on the CONSUMPTION OF POTATOES. "Next to bread, the Potato is most largely used as farinaceous food, especially in Ireland. The home growth of Potatoes was estimated by Sir James Caird at 111,000,000 cwt. According to the agricultural statistics for 1880, the number of acres under cultivation in the United Kingdom was 1,380,578. Estimating the produce at 3 tons per acre, the total produce would be 82,835,000 cwt., and at 6s. per cwt., the cost would be £24,850,000. Add 9,750,000 cwt. imported, at an average price of 5-84s. per cwt., value £2,847,000, we have a total quantity of 10,000,000,000 lbs. of the value of £27,697,000, and with 20 per cent. for distribution, £33,238,000."

— GARDENING APPOINTMENT.—We are informed that Mr. Divers, the experienced foreman at Burghley Gardens, Stamford, has been appointed gardener and estate superintendent to J. J. Hopewood, Esq., Ketton Hall, Rutlandshire, whose garden is reputed to contain the finest Peach houses and the best collection of Peaches in England.

— A FASCIATED HYACINTH—A CHALLENGE.—A sheet of printed correspondence has been sent us on the subject of exhibiting Hyacinths with double spikes, and which has resulted in Messrs. Wm. Cutbush and Son of Highgate issuing a challenge to Messrs. Dickson, Brown, and Tait of Manchester to show twenty-four varieties of Hyacinths, single spikes, at Manchester any time between the 15th and 25th of March, 1885, the loser to pay in the name of the winner the sum of £10 10s. to the funds of the Gardeners' Royal Benevolent Institution. It appears that Messrs. Cutbush staged Hyacinths with twin spikes, "not for competition," at Manchester on March 18th of the present year, and on a protest being lodged the Council of the Manchester Royal Botanical Society passed a resolution very much regretting the occurrence, and inviting an explanation. The "explanation" tendered was in the form of letters from Messrs. Veitch, Williams, and Baines, which sustained Messrs. Cutbush in what is undoubtedly a general custom in non-competitive groups, and in which the exhibitor has the right to stage plants with twin or fasciated spikes when his bulbs produce them. If such spikes are objected to it is for the framers of schedules to

specify this, as has been the case in the schedule of the Royal Botanic Society of London. The challenge in question remains open for acceptance till the 30th inst.

— **THE INNER TEMPLE GARDENS.**—By permission of the Benchers the Inner Temple Gardens on the Thames Embankment were opened to the public on Monday last, and will continue open during the months of June, July, and August, from six to nine o'clock every evening. This is a great boon to dwellers in the densely crowded district adjacent, and thousands of children cannot fail to be benefited by the advantage accorded of disporting themselves on the spacious lawn, to which, Mr. Newton has informed us, they do little or no damage.

— **FOOD PLANTS INJURED BY INSECTS.**—In connection with a flower show to be held at Frome on August 4th, there will be a novel competition, being a class for the best collection of food plants injured by insects, accompanied by specimens of the insects injuring them. Each of the collections must be accompanied by a short and simply written account of the attacks represented, and what were done to get rid of the insects, and whether successful or not. No scientific descriptions are needed, but only a simple statement of facts. The prizes offered are £3, £2, and £1, and are given by Miss E. A. Ormerod, F.M.S., Consulting Entomologist to the Royal Agricultural Society of England. They are open to the whole of the United Kingdom. As the entrance fee is only 2s., and as the competition is the first of the kind ever held, this ought to be a most interesting feature of the flower show. The Hon. Secretary is Mr. Henry F. Moore, *Frome*.

— **THE annual Exhibition of the ROYAL NATIONAL TULIP SOCIETY** was held in conjunction with the horticultural Show at the Botanic Gardens, Old Trafford, on Saturday last, and a highly interesting display was provided; the number of exhibitors and general quality of the Tulips staged being fully equal to preceding shows. Manchester people are accustomed to and welcome these shows; but in the south of England such an exhibition would now be quite a novelty, for comparatively few are acquainted with the beauty of florists' Tulips. The principal class was for twelve dissimilar varieties, two feathered and two flamed in each section. In this the Rev. F. D. Horner won chief honours with beautiful fresh blooms of Mrs. Cooper, Industry, Garibaldi, Queen Mary, Duchess of Sutherland, Rose Celestial, Dr. Hardy, Annie McGregor, Sovereign, Sir J. Paxton, and Talisman. Closely following were Messrs. J. Thurston, J. Knowles, J. Morris, and D. Woolley. In the classes for smaller numbers of varieties the competition was very keen but it was particularly so for single specimens, some hundreds of blooms being staged, the above-named exhibitors, together with Messrs. Baker, Barlow, Prescott, and Woolley, taking the leading prizes.

— **A NOVEL EXHIBITION** was opened at the St. James's Hall, Manchester, last Thursday, and though devoid of the interest attaching to competitive exhibits, it was remarkable for the excellent taste displayed in the arrangement. A large number of Rhododendrons, Azaleas, Roses, Spiræas, and similar plants had been purchased for the occasion, and under the superintendence of Mr. J. F. Johnson these were disposed in bold handsome groups which, in the spacious hall above mentioned, had a most beautiful effect. Mr. Johnson deserves much praise for the skilful manner in which the Show was arranged, and proved conclusively that there is yet much room for improving the effectiveness of horticultural exhibitions generally. The Rhododendrons were superbly flowered, the colours bright and varied, and the Azaleas were not only brilliant in colours, but filled the hall with their powerful fragrance.

— **MESSRS. CASSELL & Co**, Ludgate Hill, send us samples of the current issues of several of their serial works, including the following:—Part 46 of "Paxton's Flower Garden," which gives coloured plates of *Oncidium cucullatum*, a very poor variety and dull-coloured, and *Azalea amœna*, which is also rather unsatisfactory in colour. Part 2 of "Popular Gardening" has a continuation of "Roses and Rose Culture," "Garden Walks and Roads," "The Life History of Plants." Chapters are also given on the "Flower Garden," "Kitchen Garden," "Garden Pots and Potting," and "Florists' Flowers." Part 64 of "Familiar Garden Flowers" describes the Tulip and *Saxifraga peltata*; Part 37 of "Familiar Wild Flowers" being devoted to the Teasel, the tuberous Moschatel, the style of both the latter being similar to that in preceding parts. Part 5 of the "Encyclopædic Dictionary" is continued in the same admirable manner as we have previously commended, and Part 2 of the "Book of

Health" contains a continuation of the description of fruit and vegetable foods.

— **AN AUSTRALIAN VINEYARD.**—Among Australian vineyards that of Mr. John Wyndham, Dalwood, New South Wales, occupies a prominent place. The Vines cover an area of 70 acres, the quantities of Grapes produced annually varying according to season. The vintage of 1883 exceeded 45,000 gallons, after the loss of nearly half the crop by hail, &c. The vineyard covers an area of 70 acres. The cost of cultivation per acre is from £18 to £20, the whole vineyard being kept at all times in perfect order. The character of the wines ranges from light to medium full-bodied, strength from 20 per cent. to 24 per cent. natural proof spirit, the bulk being 21 per cent. natural proof spirit. The wines are not fortified. The soil is a red sandy loam, generally of great depth, with a substratum of ironstone gravel; then a rich marl clay, intermixed with small globules of lime. The Vines are staked and trained on wire espalier fashion. The Vines were first planted by the late George Wyndham, the father of the present proprietor. After the new plantation began to bear fruit the old Vines were taken up. The industry has been established at Dalwood for more than fifty years, and nearly the whole life of the present proprietor has been devoted to its development and perfecting. The vineyard is kept in the highest possible state of cultivation, and all Vine and wine refuse is regularly returned to the soil in a systematic manner. The quantity of wine in stock is over 71,000 gallons, and the quantity produced since 1876 was over 276,000 gallons.

PRUNING AND SIZE OF ROSES.

THE mistake "J. A. W." makes about big Roses is much the same as "A. C." and "W. C. T." make about pruning. There is no laying down a general law. I do not think a beautiful Rose is made any worse by being made larger by good care and treatment. Her Majesty is large, but it is by no means coarse; it is like an improved form of a very good old Rose, Charles Lawson and Baronne Prevost. The old Blairii, again, is not easily surpassed, or the Cabbage and Moss. I would not think of putting Her Majesty into a lady's bouquet, but we do not grow our Roses for ladies' bouquets only. There are plenty of smaller buds and flowers from the side shoots for that purpose; but I fear if "J. A. W." were to try to persuade exhibitors to put them up in their stands the verdict of the judges would not be in their favour, and I have had more than usual share of experience, having judged perhaps about 500 times, more or less. Beunett's seedling is certainly a wonderful development of size, though it cannot be called graceful any more than a big Dahlia or a large blossom of Hollyhock.

When judging at Manchester the first time A. K. Williams was exhibited, I and my co-partners had finished the nurserymen's classes before the amateurs' had been judged; so my friend "D." of Deal said to Mr. Cheales and me, "Go and do the new Roses." At once I said, "There, that's the best Rose I have seen as a new one since I was so taken by a staud at Birmingham of Dupuy Jamain." It was large. My verdict was wonderfully true, as last year it was at the top of the tree or Rose list, equal with the old champion Marie Baumanu. Now, there is no Rose that opens every bud, great or small, better, and no Rose better for the front of a house. I cannot praise it too much for forcing either, and it strikes like a weed; so will almost any Rose if persons would get out of the absurd plan of trying to strike them by sticking long bits in the ground under a north wall. Every Rose will strike if strong young shoots just after the blooms have been cut are put into pans in a warm propagating house. No one, I believe, hardly knows that bottles of water in a stove will strike plants that refuse to strike in any other way, Lapagerias, for instance, and many other plants. This makes me somewhat digress, but such criticisms, or we will say remarks, as those of "J. A. W., Alderminster," will not, I expect, in any way alter the opinion of rosarians about big Roses. The way to appreciate them is to put them in shallow glasses, but sufficiently tall to hold each a single specimen, or in a stand at a show.—C. P. P.

AURICULAS IN SCOTLAND.

DURING the blooming season just closing I have had the pleasure of seeing a number of collections in Scotland, from those of two or three thousand each at Raploch near Stirling, and Bankhead near Duns, down to such as my own of about as many hundreds. My impression is that, over all, the bloom was less simultaneous than we generally have it, the trusses on the whole smaller, and, while the quality was at least an average one, that there was in not a few varieties a greater tendency to "sport" than usual. I noticed a most curious freak of this kind in the case of St. Augustine at Raploch, where the diversity in the pips of one truss was unusually singular. Among others General Neil, uncommonly good now and then, has varied greatly, and Imperator was everywhere unrecognisable.

The friends of the veteran Mr. Meiklejohn, now close on eighty-seven years of age, will be glad to learn that he has rallied surprisingly from the severe bronchial attack of last autumn. I am reminded of a call I then made while he was nearly at the worst. A plant of Acme then in bloom had to be brought in, and I verily believe the sight of it did him more good than the previous medical potion.

In noticing such extensive collections the mere mention of any outstanding items must suffice. I remember, then, at Raploch the bloom of one plant of Mrs. Sturrock as certainly the most refined I have seen, the best Duchess of Oldenburgh, excellent examples of Campbell's Confidence and Trail's Anna, and the only cases I met of Page's Champion and Ashton's Bonnie Lass. Mr. Meiklejohn's own green-edge, J. B. Kerr, I missed in bloom this year, but his grey edge, John Morris, was very fine. It bears itself very much in the style of Acme, and will yet be more heard of. A second truss on a plant of Prince of Greens was the best I have seen. The same variety was promising to be as fine in the collection of Mr. Jeffrey at Falkirk. With these two exceptions I have never met the Prince in very attractive form. Mr. Jeffrey had also Lord of Lorne of very fine quality, indeed a large proportion of his flowers were so. His Headly's Petronella was equal in all but size of truss to a very fine example of it in the capital healthy stock of Mr. Menzies at Bankhead. Along with all the commoner and many of the rarer varieties, I there saw for the first time Duke of Argyle. Charles Jas. Perry and Pohlman's Mazzini were both in fine form, as were also Smith's Ne Plus Ultra and Lightbody's Countess of Dunmore. I could not manage to run to Dundee, where Mr. Morris has had, as he writes me, a display rather irregular in time, but of fine quality. I welcome as a fine addition to the class of selfs, which I consider still the most defective in many points, a plant of Low's Mazzini he kindly sent me, and which, though received late, sent up three pips. From what it showed I shall look forward with interest to its flowering next year. One may be unduly biassed in such judgment and his vision unintentionally impaired by partiality, but I fancy—and I do not speak without sanction—that I came across no Acme, John Waterston, Countess of Wilton, Glory, Lycurgus, or Pizarro that surpassed my own.

Somewhat astounded at this blast of my own trumpet, I pass on to answer a question often put to me by those who so much admired my own flowers—"Are they difficult to manage?" I write in the hope that many more of my brother amateurs will be induced to take stage Auriculas in hand, and I believe they would do so were the delusion fairly dispelled under which I laboured when with no little trepidation I some years ago began with a dozen varieties. Let me state a few facts. I know them grown and thriving in the closer quarters of towns, and in the free pure air of the country, in all sorts of houses, except where there is heat, in all sorts of frames, and in some rickety structures in which I would almost hesitate to try any plant. Some growers use carefully prepared composts; one large collection is grown with but little addition in the ordinary garden soil. I find them in pots glazed and unglazed, and of widely differing sizes. In some cases the lights are almost never, except in the most inclement weather, closed on them; in the case of one of the best and largest collections I know circumstances render it necessary to keep the lights constantly down, except when the plants are being tended, air being admitted from below and at the sides. What other flower is so accommodating? I now repeat what I replied to all inquirers, that very few flowers give me so little concern as to their management. And so to all who may be induced to join the ranks I would say: Begin at once with good sorts. You will succeed with them or with none; and many of the varieties that have been recommended in the Journal can be had as cheap or nearly so as inferior varieties.

I cannot understand, except on the explanation of wanton waste, how such varieties as Arabella, for instance, which I have never had or seen worth one-third the money, or Trail's Beauty, both of which, as a friend says, "grow like weeds," should continue to command the price they do. Another friend whom I consulted, and to whom I am indebted for a helping hand, wrote me, "For some sorts you may whistle as sailors do for wind, and with much the same result." But by what is known as paying for your whistle and by welcome friendly aid, it is wonderful how one gets one. Of course, for some of the later additions that we read of at the great southern tournaments we must just make up our minds to long, and sigh, and wait.

Suitable soils have been often described in these pages. I place most reliance on a little good old turf. With the soil moderately damp crock well and pot firmly, they like that. Admit air freely at all suitable times. Do not at any season expose them to strong sunshine. I have now concluded to keep my frames always facing north. Keep the surface of the soil always clean and open, and never allow the leaves to flag; give water all the year round sufficient to prevent that. Do not take off offsets till they are pretty strong and rooted. Above all, avoid that most objectionable phase of the period of "resting," falsely so termed, where, as I have seen it carried out to the full, the poor Auricula is pitted against grass and plantation as if to decide the question of the survival of the fittest. Yet even to such unequal odds the ill-used flower will long refuse to succumb. Pity that it should ever again reward its owner's neglect with a sight of its beautiful face! Try them on the lines indicated, and your experience will, I hope, be mine in a returning display of such attractiveness that the ejaculations of admiring visitors would seem enough to make the sweet flowers droop their lovely modest heads. But, a last caution. If you have already enough on hand leave them alone. A growing acquaintance with these winsome insinuating flowers will be certain to result in a growing drain on your time and attention, to the detriment if not the dismissal of some of your present favourites.—A NORTHERN AMATEUR.

LESS AIR FOR PEACHES.

SOME months ago Mr. McIndoe of Hutton Hall, I think, contributed some very interesting notes on growing Melons without air, and promised

your readers further notes on growing Peaches with less air. I have not noticed that this promise has been fulfilled, and I scarcely think it can have escaped my notice. He will now have the advantage of another season's observations, and I hope he will favour the readers of the Journal with any information on this point, as I think it is moving in the right direction.—R. I.

DOUBLE NARCISSI.

PERSONALLY I am not so partial to double as to single Daffodils, yet there is much of value and interest in them, so much of the latter that I cannot allow this season to pass without penning a few remarks upon them. I have been unusually interested in the flowers as well as in the numerous notes in the horticultural press; and while gladly coinciding with the larger portion of what has been written, yet there have been certain instances in which, judging solely from my own observations, I could not agree with the writers. This is particularly so with regard to the supposed origin or parents of some of the varieties now cultivated. The few remarks made herewith are summarised after examining many flowers of many forms.

Beginning with the trumpet section, with the almost endless forms included therein, all are in my opinion of one common origin, which for convenience sake we may name *N. Pseudo-Narcissus*, proceeding in one direction from the typical size to the much smaller *minimus*; while another line diverges from the type till we reach the larger form called *bicolor Emperor*, which, as far as I know, is the largest of all single Daffodils. In this trumpet series there are several duplicated forms, but all can be arranged under two groups—viz., 1, Double *Pseudo-Narcissus*. 2, *Telamonius* double, each having a very varying series of duplicated forms, which becomes extremely puzzling the more they are studied, so that without any difficulty they might be thrown together. In the first group may be included the double forms of the true wild Daffodil and *Capax* or *Eystettensis*, commonly known as "Queen Anne's Daffodil." The latter I believe to be a double form of one of the sulphur-coloured varieties of *N. Pseudo-Narcissus*, as it is almost self-coloured, with a stellate imbricated arrangement of the segments, very similar to that in a very rare double form of *N. Pseudo-narcissus*, and there is little or no perfume, such as is so strikingly emitted from the duplex forms of *Telamonius*; the leaves, bulb, and habit evidently favour what is here given as its probable origin. Then there are the double forms of the common wild Daffodil, of which I have three—1, with the perianth quite perfect, but sometimes there are more than six divisions, and the trumpet is intact, but partially filled with petaloid segments, all of the same colour as the tube; this was collected in Devonshire, and occurred with some of the single form amongst a batch of the double *Telamonius*, and its origin is not at all difficult to understand, for many of the petaloid segments of double *Telamonius* are polleniferous, and it is quite likely that flowers of the single form were impregnated with such pollen, and the progeny would most likely by that means become semi-double. 2, Perianth quite perfect as in the last; trumpet more crowded and shortened ultimately splitting up, with the segments freely fringed; usually these are all of the same deep yellow colour, but sometimes there are a few light-coloured segments intermingled. This is evidently a still further development from the last, and was collected from the same batch. 3, Perianth and corona interblended, having the stellate-imbricated arrangement of *Capax*, with the paler and deeper-coloured segments regularly alternated, forming a most charming contrast, rendering it in my opinion the prettiest double Daffodil in existence; the leaves are very much broader and altogether larger than the typical form. This form, too, is almost scentless. This form is, I think, figured in Burbridge's "Monograph," but the edges of the segments as there shown are fringed, whereas those of the flowers I have are not. I must not forget to mention the double form of the variety *cernuus*, which is very double and rose-like in form, and, unfortunately, far too rarely seen in our gardens.

The *Telamonius* section of duplex forms are, I fancy, the result of a cross between double forms of *N. incomparabilis* and some of the larger single-flowered varieties of *Pseudo-Narcissus*. I take this view chiefly on account of the strong perfume you get in this section; whereas, as far as I know, the single forms of trumpets have at most but a very slight scent, besides the perfume is much like that of the peerless Daffodils. I am inclined to ask where this perfume comes from. Is it possible that in the multiplication of parts—assuming this to have had a common origin—there would also be a development of perfume so striking as is evidenced in the case of these Daffodils? If so, why is there not a proportionate increase of scent in the double forms of *N. Pseudo-Narcissus* proper? I fail to detect it if there is. Taking this view of the matter, the question arises, Which of the double forms were first cultivated in our gardens or those of continental Europe, the peerless or the trumpets? and this is a difficult matter to be certain about. We should be materially assisted if authentic information could be obtained from continental sources, as I am of opinion that the double forms of *N. incomparabilis* are of south or middle European origin. There is a great variation in size and form of this series of double Daffodils, and I include therein what one may call the typical double *Telamonius*, *grandiplenus*, and *lobularis plenus*. The former is, I think, the Van Sion of continental dealers, and is very variable. Some of the flowers are crowded with segments, evidently the result of extra doubling of the corona, while in others the number of segments is materially lessened, and they are disposed in a stellate-imbricated manner similar to the form of *N. Pseudo-Narcissus* described, and yet I should be slow to say that in such flowers

no duplication of the corona has taken place, for in the variety just referred to it is very clear from the different colours that the corona is split up. It has been said of *N. Capax* that the multiplication of parts is "entirely confined to the perianth segments." Viewed in the light revealed by the particular variety of *N. Pseudo-Narcissus* referred to, and some forms of double *Telamonius*, there is in my opinion very little ground for this assertion, and it appears to be constructed upon a very superficial basis. Such stellate forms of double *Telamonius* I observe are not so vigorous, being much dwarfer when planted side by side with others, and there is also a greater uniformity of colour—indeed, more colour—than in the larger and more duplex forms; but in all the varieties you get the peerless-like perfume. I may here repeat my question as to whether this results from mere increase of coloured segments, or has it been infused by cross-breeding from *N. incomparabilis*?

N. grandiplenus is a very full flower, more often than not freely mixed and tipped with green, and the flowers are almost too heavy to stand erect. *N. lobularis plenus* is a very doubtful name; it evidently belongs to the *Telamonius* section, but has originated from a smaller flower, most likely from what is known as *lobularis*, which is in my

others, which are, however, not so distinct; the first form is especially variable both in number of segments developed and the colour. Several other duplex forms might be mentioned, but as there is little difference of opinion respecting them it is unnecessary to occupy any more space.—T.

IPOMÆA THOMSONIANA.

IPOMÆAS are great favourites amongst the best of roof-climbing plants for stoves, and several of them yield some of the richest tints of purple and crimson. There has, however, hitherto been a deficiency of light-coloured varieties, and that want has been most admirably supplied by the *Ipomæa Thomsoniana* (fig. 104), which Mr. B. S. Williams has introduced. It resembles *I. Horsfalliæ*, and was regarded as a variety of that until Dr. Masters determined it to be distinct, and honoured it with the above name. The flowers are larger than those of *I. Horsfalliæ*, and are borne in handsome wreaths clustering closely along the branches at

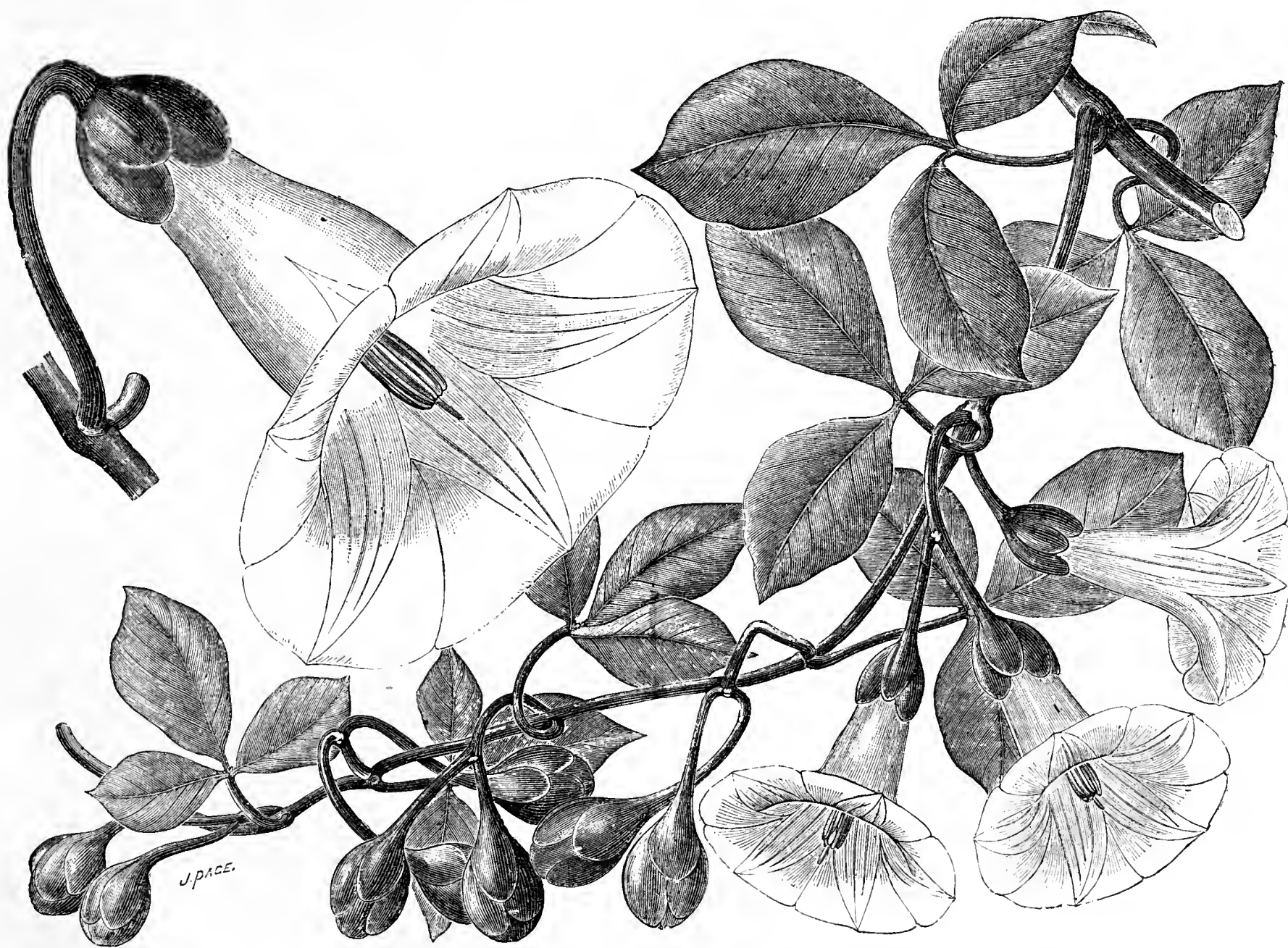


FIG. 104.—IPOMÆA THOMSONIANA.

opinion only a major development of *nanus*, hence you generally get this variety from the continent under the name of *N. nanus plenus*. I had a variety from Mr. Barr under the name of *N. lobularis plenus odoratissimus*, but could not distinguish any difference between it and the ordinary form.

There are at least three double forms of *N. incomparabilis*. 1, Which may be regarded as a duplex form of the typical *N. incomparabilis*; the perianth divisions are sulphur, while the duplicated coronal segments are deep yellow. This is known as "Eggs and Bacon." 2, Perianth divisions sulphur, while the coronal segments are deep orange—a very striking contrast, rendering the flower very attractive; known under the common name of "Butter and Eggs." This has, I think, originated from the variety *aurantius*. 3, Perianth division pale sulphur or creamy white, freely duplicated, while the pale coronal segments are but sparingly developed, the flower having a bold Rose-like appearance, and has probably originated from the variety *albus*. All three are very handsome and vigorous varieties, and should be extensively grown; the last is particularly desirable for pot culture. Beside these there are several

every axil, and have a fine effect when the plants are trained to the roof of a stove. The flowers are beautifully formed, the limb being quite circular, contracted below into a funnel-shaped tube. The leaves are rich green, thick, and have three neat oval leaflets. It is undoubtedly a most welcome addition to our list of indoor climbing plants, and will in a few years become an inhabitant of many gardens.

VINE GROWTHS.

SINCE writing before on this subject I have referred to Mr. Pearson's book on the Vine, published at the Journal office in 1880, and I ask to be allowed to add that in it I do not find any mention whatever of the practice recorded by "A Kitchen Gardener" as being associated in his mind with Mr. Pearson's practice. On the contrary, at page 19, Mr. Pearson recommends strong Vines to be cut back in the usual old way, and weak ones to be cut down nearly to the bottom of the rafter. At page 21 he

says, "that Vines properly treated ought to be in a good bearing state the third year; at any rate for 8 or 9 feet up the roof." "A Kitchen Gardener" said 12 feet the first year, and he therefore can be no disciple of Mr. Pearson. Mr. Pearson is, however, at one with myself in thinking that the more growth the stronger the cane, for he writes at pages 18 and 19—"Let the leader make all the wood it can... the more healthy fully exposed foliage the Vine makes the more roots it will have, and the stronger it will grow."—NON-BELIEVER.

ROSE HER MAJESTY.

Your correspondent "J. A. W." in his article on "Big Roses" in the *Journal of Horticulture* of May 15th, page 378, commenting on the Rose Her Majesty, states, "I can only believe the raiser looks on this as a monstrous curiosity," and that it will not be sent out in this country. To both of these statements I give the fullest and flattest contradiction. "J. A. W." is quite unknown to me, therefore cannot have been in my confidence, and I consider his assertion unwarrantable.—H. BENNETT, Shepperton.

MANCHESTER WHITSUNTIDE SHOW.

MAY 30TH TO JUNE 6TH.

SEVENTEEN annual exhibitions have now been held at Whitsuntide in the gardens of the Royal Botanical and Horticultural Society at Manchester, and after such a long career it is pleasant to be able to record that their last Show was in many respects the finest they have ever held. It was undoubtedly the largest, the competitors being more numerous, and the general beauty of the Exhibition has never been surpassed. There were of course a few weak classes, but the grandeur of the Orchids compensated for every defect of this kind, and the fine-foliage plants with Ferns were in admirable health.

The most important portion of the display was that contained in the magnificent new exhibition house, which is the finest structure of its kind in the country. It is over 200 feet long and 50 feet wide, well proportioned, and elegant in design, having a central table and two side beds. The former was occupied with miscellaneous groups—Pitcher Plants, table plants, bouquets, &c., the side beds being devoted to the stove and greenhouse plants, fine-foliage plants, and Orchids. The last named formed handsome banks of richly and delicately tinted flowers; but the grandest feature was at the end of this building, where Mr. Percival's wonderful specimen Orchids were placed, with a background of Mr. Schloss's superb *Gleichenias*—a contrast of extreme beauty such as we have never seen equalled at a public show. In the other portion of the house the *Crotons*, *Dracenas*, and *Palms* formed the background to the numerous collections of Orchids, the stove and greenhouse plants being arranged near the entrance.

The spacious marquee which contained the groups of plants arranged for effect, the *Rhododendrons*, *Clematises*, *Roses*, and some smaller classes. On the slope of the mound at the end near the entrance there was a ridge of Messrs. R. Smith & Co.'s charming *Clematis*, neat globular specimens beautifully flowered; below these were Mr. C. Turner's Show and Fancy *Pelargoniums*, fresh, healthy, profusely flowered specimens. Beyond these again was a central circular stage bearing Mr. Turner's brilliant *Azaleas*, and surrounded by small *Roses*, *Calceolarias*, and *Cinerarias*. Very prominent on the left looking towards the end of the marquee was a magnificent group of choice stove and greenhouse plants in flower from Messrs. Cutbush and Son, which attracted very much admiration; then there were the groups in competition, Messrs. R. P. Ker's tasteful contribution and Messrs. Birkenhead's exquisite bank of Ferns being the most important features; while at the end were grand banks of *Rhododendrons* from Messrs. John Waterer and Sons, Bagshot, which furnished abundant shades of crimson, purple, rose, and scarlet. In this marquee, as in the exhibition house, the most careful attention had been given to the arrangement of the exhibits, the brightly coloured flowers being softened and contrasted with foliage plants in due proportion, producing a general effect of extreme beauty.

In a long tent parallel with the exhibition house were the majority of alpine and herbaceous plants, which are never shown at any exhibition in England in such numbers and quality as at Manchester. *Pelargoniums*, *Calceolarias*, and a few miscellaneous collections, together with the fruit, and on Saturday, with the beautiful display of Tulips from the National Tulip Society, completed the attractions of this tent, which added materially to the extent and interest of the Show.

The Committee and the Curator, Mr. Bruce Findlay, deserve much praise for the energy they display in connection with this Society, which they have raised to a foremost position, and which in the north of England assists so greatly in fostering a love for horticulture, not only amongst the wealthy, but amongst the poorer classes. The appreciation in which it is held is abundantly proved by the numbers of visitors that assemble in the gardens during the holidays, and fortunately, though the weather was exceedingly gloomy on the first two days, it became brighter on Sunday and following days, with the result that the Exhibition was, as usual, thronged.

ORCHIDS.

At no exhibition throughout England is such liberal provision made for Orchids as at Manchester, and as a natural result the display is larger, more varied, and more beautiful than can be seen elsewhere in the kingdom. Independent of the numerous other exhibits which render the Whitsuntide Show of such magnitude and interest, the Orchids alone constitute an exhibition of unequalled attractions, and one which would be worth a long journey to see. In the neighbourhood of Manchester there are a number of enthusiastic and wealthy amateurs, who usually spend large sums of money on purchasing the newest or choicest species or varieties, and in growing fine specimens, and the prizes are good enough to induce not only these to contribute their valuable plants, but also growers from a great distance. There is besides a great local interest and pride in their famed national show, and every effort is made to render it worthy of its name; indeed, it is difficult to imagine a more beautiful display than that provided in the handsome new exhibition house, which, being properly heated, prevents that

injury to the plants which is too often the result of staging such plants in the ordinary tents. A wealth of colours, from the brightest gold and scarlet to the richest crimson, like this could only be afforded by Orchids, and every visitor on entering the house was amazed by the effect.

Eight classes were devoted to Orchids, six being for amateurs, with a total in prize money of £104; and two to nurserymen, with a total of £52, the first prizes ranging from £16 to £3. In the majority of these the competition was keen, and the plants staged quite up to the usual standard—healthy and well flowered. The principal amateurs' class was that for fifteen Orchids in flower, the prizes being £16, £12, and £7. In this there were three exhibitors, Mr. G. Beddoes, gardener to R. P. Percival, Esq., Cleavelands, Southport, taking premier honours for grand specimens 3 or 4 feet in diameter, comprising *Lælia purpurata*, with about eighty large flowers; *Cattleya Mendelli*, with fifty flowers—fresh, bright, and even; a large pan of *Odontoglossum Alexandræ*, with about thirty spikes; *Dendrobium thysiflorum*, with twenty-six grand spikes, very handsome; *Odontoglossum vexillarium*, bearing over forty magnificent racemes of richly coloured flowers; *Thunia Bensoniæ*, with two dozen growths, each with four or five rosy purple flowers; *T. Marshalliæ*, very strong and healthy, but not quite forward enough; *Cypripedium barbatum*, with three dozen flowers; *Anguloa Clowesi*, with twenty flowers; *Dendrobium nobile*, 4 feet in diameter, with hundreds of flowers; *Dendrobium fimbriatum oculatum*, similar; *Oncidium concolor*, in a basket 3 feet square; *Vanda suavis*, with two spikes; and *Dendrobium Jamesianum*, with about twenty flowering growths. This was a magnificent collection, and well merited the award it received.

Mr. J. Holmes, gardener to D. Schneider, Esq., Cromwell Range, Fallowfield, was placed second, his best specimens being *Dendrobium Wardianum*, with over 100 flowers of a fine variety; *D. Dalhousianum*, with two dozen grand spikes of six to seven flowers each; and *Aerides odoratum purpurascens*, with seven spikes. Mr. Swan, gardener to W. Leech, Esq., Oakley, Fallowfield, was third with smaller but healthy well-grown plants.

For nine Orchids there were three exhibitors, Mr. Beddoes again taking the lead with a magnificent *Dendrobium chrysotoxum*, with over thirty spikes of ten or a dozen flowers each. *Cattleya Mossiæ*, *Odontoglossum vexillarium*, *D. thysiflorum*, and *Cattleya Mendelli*, all in fine condition, *D. formosum giganteum* being also very handsome with twenty-six large flowers. Mr. Holmes secured the second place with a neat fresh collection, comprising a very handsome *C. Mossiæ*; and Mr. Mitchell, gardener to Dr. Ainsworth, Cliffe Point, High Broughton, took the third position with small fresh plants. The competition was keen in the class for six Orchids, the best collection being those from Mr. Mitchell, in which the heaviest specimen was *Phalaenopsis amabilis*, bearing forty spikes of four or five flowers each, large and clean. *Saccolabium præmorsum* with two spikes and *Cattleya Mossiæ* with two dozen flowers were also noteworthy specimens. Mr. Swan was a close second, having *Odontoglossum Alexandræ* and *cirrhum* very handsome, *Vanda suavis* with three grand spikes, and *Aerides Fieldingi* with five large spikes. Mr. G. Waddell, Orchid grower to Joseph Broome, Esq., Wood Lawn, Didsbury, being third with a beautiful *Vanda teres* bearing thirty flowers, having others that were in full health though small.

The interesting class for ten *bonâ fide* specimens brought four collections, Mr. Beddoes winning first honours with *Lælia purpurata* bearing thirteen spikes of three and four flowers each, a healthy vigorous specimen; *Odontoglossum citrosum* with two spikes; *Cypripedium Dominionum* with seven flowers; *Cattleya Sanderiana* with two spikes of four and five flowers each, grandly coloured; *Cattleya Mossiæ* with thirty flowers and buds; *Vanda suavis* with two spikes, ten flowers; and *Odontoglossum vexillarium*, beautifully coloured, with sixteen fine spikes of six and seven flowers each; *Anguloa Ruckeri* with eight flowers, and *Cypripedium caudatum* with eight flowers. Mr. Waddell was placed second; his best plant, and one of the finest of its kind in cultivation, was *Vanda teres* 5 feet high and as much in diameter, bearing about fifty spikes of three or four flowers each. Several good *Dendrobiums* were included, *D. Freemani* being remarkably well flowered. Mr. Holmes was third with *Dendrobium nobile intermedium*, 4 feet high and through, having hundreds of light-coloured but pretty flowers.

The nurserymen's classes were not remarkable for any very large specimens, Mr. Cypher, Cheltenham, being first with sixteen specimens, mostly of moderate size; *Dendrobium thysiflorum* having fourteen spikes, *Cypripedium Lawrenceanum* eleven fine blooms, and *Dendrobium Falconerii* on a raft, with very handsome richly coloured flowers, one of the finest varieties we have seen. Mr. H. James, Lower Norwood, was a close second, his collection being slightly less effective than the other, but containing fine plants of *Oncidium Marshallianum* and *Cypripedium barbatum*. Messrs. Heath & Son, Cheltenham, followed with well-flowered plants. In the class for ten specimens, however, Mr. H. James was a good first with a beautiful group, comprising *Odontoglossum vexillarium*, very deeply coloured; *Odontoglossum Alexandræ*, with six spikes of large beautiful flowers; *Cypripedium barbatum grandiflorum*, with twenty-two flowers; *Epidendrum vitellinum majus*, with eighteen spikes; and *Odontoglossum cordatum aureum*, with six spikes. Mr. Cypher was second with showy well-grown plants of *Dendrobium Dearii*, with three spikes of seven to nine flowers each; *Dendrobium thysiflorum*, with sixteen spikes not quite out; *D. Bensoniæ*, and *D. Wardianum* finely flowered. Messrs. Heath & Son were third with small plants. Only two collections of three *Vandas* were staged; Mr. M. Bailie, gardener to the Earl of Wilton, Prestwich, winning the premier honours with three handsome plants 4 feet high, two plants of *V. suavis*, and one of *V. tricolor* with two spikes each. Mr. G. Jackson, gardener to S. S. Whalley, Esq., secured the second place with three plants of *V. suavis* 2 to 4 feet high, one having one spike and two a pair of spikes each.

Altogether it is doubtful if so large a public exhibition of Orchids has ever been seen, and most conclusive evidence was afforded of how high a position these plants hold in popular estimation, and the great care bestowed upon their culture. It is true that some might object to several rather markedly packed specimens of the "made-up" type, but they serve to make a good show, and this, by attracting the people, insures the success of the Exhibition. However, to gratify those who prefer the *bonâ fide* single specimens a class was specially provided, and that is really all that can be done by managers of horticultural shows, as to exclude all others would be ruinous.

FINE-FOLIAGE PLANTS.

Next in importance to the Orchids were the fine-foliage plants, and these were all uncommonly well shown both as regards numbers and general good quality. The principal class for amateurs was for ten specimens; and in this Mr. G. Smith, gardener to J. Rylands, Esq., Stretford, won the leading honours with an extremely well-grown collection, comprising magnificent plants of *Croton Weismanni*, *Pritchardia pacifica*, *Cibotium Schiedei*, *Cycas revoluta*, *Areca lutescens*, and *Alocasia Lowii* of great size, and in the case of the *Croton* and *Alocasia* finely coloured. A close second position was gained by Mr. Paul, gardener to S. Schloss, Esq., Bowdon, who had particularly good examples of *Anthurium Veitchii*, *Cycas revoluta*, *Zamia Lindenii*, and *Gleichenia Mendellii*. Mr. Roberts, gardener to E. Cliffe Glover, Esq., Leek, was third, showing *Latania borbonica*, *Ptychosperma Alexandræ*, and *Kentia Belmoreana*, handsome in size and health. In the nurserymen's class for eight specimens Mr. Cypher, Cheltenham, gained the premier prize with praiseworthy examples of *Cordyline indivisa*, *Cycas circinalis*, *Latania borbonica*, *Cycas revoluta*, *Croton Williamsii*, and *Kentia Canterburyana*, the remaining prizes being secured by Mr. H. James of Lower Norwood, London, and Mr. E. Tudgey, Waltham Cross, whose plants have already this season made a good appearance at several leading shows in the south of England.

Crotons.—These were magnificent, of special importance being the beautiful collection of ten from Messrs. R. P. Ker & Sons, Liverpool, which secured them first honours in the nurserymen's class. The Liverpool plants are remarkable alike for their clean vigorous growth, their rich colours, and for the fact that they are mostly confined to one stem, a mode of culture which appears to suit them admirably. The varieties represented were princeps, Queen Victoria, interruptus aureus of wonderful colour, Baroness Rothschild, Hawkeri, Evansianus, Weismanni, Warreni, and Williamsi. Mr. H. Cole, gardener to J. Broome, Esq., Wood Lawn, Didsbury, was the most successful amongst the amateurs in the class for six *Crotons*, showing fresh highly coloured plants of *Andreanus*, Prince of Wales, Williamsi, Evansianus, and Queen Victoria, 3 to 4 feet high, bushy and handsome specimens. Mr. Roberts took the second place with similarly well-grown plants, his best specimens being *Hawkeri* in grand condition, *Johannis* very elegant, and *Baron F. de Rothschild*. Mr. C. Paul was third with rather poorly coloured plants.

Dracænas.—In the nurserymen's class for twelve specimens Messrs. R. P. Ker & Sons were the premier exhibitors, showing a beautiful collection, which, like the *Crotons*, were finely coloured. The varieties were *Macleayi*, *Rebecæ*, *Alba marginata*, *Gladstonei*, *Mooreana*, *Goldieana*, *Salmonea recurva*, *Lindenii*, *Mrs. G. Freake*, and *Baptisti*. They were from 2 to 5 feet high, well proportioned, and clothed with foliage down to the pots. Mr. H. James was a good second, having especially fine examples of *Shepherdii* and *Mooreana*. Mr. Cole won the first position in the amateurs' class for six *Dracænas*, staging fresh healthy plants 3 to 5 feet high of *Goldieana*, *anerleyensis*, *Baptisti*, *Shepherdii*, *Youngii*, and *Weismanni*; Mr. Williams, gardener to S. Baerlein, Esq., Didsbury, being second with fine plants of *Lindenii*, *indivisa*, and *Rossi* amongst others; and Mr. Kemp, gardener to Mrs. Sykes, Etgley House, Stockport, was third with a similar collection of smaller plants. There were six competitors in this class, and the exhibits were very close in merit. Palms were well shown by Messrs. Tudgey, Cypher, and James in the nurserymen's class, and by Mr. G. Williams in the amateurs' class, all having large well-grown specimens.

Yuccas were well staged by Mr. G. Smith, who had the best four plants, 5 feet high and well coloured, the varieties being *quadricolor* and *aloifolia variegata*. Mr. Cole was second with dwarf but very healthy examples of *Stokesii* and *aloifolia variegata*.

Ferns.—Very rarely is such a magnificent collection of *Gleichenias* seen at shows as that with which Mr. C. Paul gained the premier prize in the class for eight stove and greenhouse Ferns. These were 6 or 7 feet in diameter and in perfect health, covered with vigorous fresh green fronds, which had a beautiful appearance behind the Orchids. The species represented were *G. Speluncæ*, *G. glaucescens*, *G. flabellata*, and *G. Mendellii*. With them were shown good specimens of *Dicksonia antarctica* and *Goniophlebium subauriculatum*. Mr. Baillie, gardener to the Earl of Wilton, followed closely, having smaller but well-grown plants of *Adiantum Flemingii*, *Acrophorus immersus*, and *Davallia bullata*. Mr. Roberts was third, his best plants being *Dicksonias* and *Cyatheas*.

For twelve hardy Ferns Mr. R. Tyldesley, Worsley, secured chief honours for a wonderfully handsome collection of large vigorous specimens. Especially notable were *Athyrium Filix-femina Vernoniæ*, *Osmunda regalis purpurascens*, *Athyrium F.-f. Craigii*, *Polystichum angulare plumosum* very beautiful, *Lastrea furcans*, and *Polystichum angulare Wollastoni*. This exhibitor is a collier, and, like many working men in the north of England, he makes a special study of Ferns, devoting all his spare time to their cultivation. Mr. Broadman took the second prize, his best plants being *Athyrium Filix-femina fissidentatum* and *Onoclea sensibilis*. Mr. J. Hesketh, gardener to H. Birley, Esq., Pendlebury, followed with several handsome *Polystichums*, *Osmundas*, and *Lastreas*. Mr. G. Smith had the best collection of six Filmy Ferns, very pretty specimens of *Todea superba*, *Hymenophyllum demissum*, *Todea pellucida*, *T. radicans*, and *T. superba*.

Pitcher Plants.—A surprisingly fine display of these was formed, and seldom is so large a number of such plants seen at exhibitions. They constituted a feature of great interest in the Exhibition house, and attracted almost as much attention from the visitors as the Orchids did. Mr. Cole had the best ten specimens in the amateurs' classes—wonderfully fine plants, some of them, as *Nepenthes Rafflesiana*, bearing dozens of grand pitchers, while *M. Mastersiana* with ten large deeply coloured pitchers has probably never been surpassed; *N. Kennedyana* and *N. Williamsii* were also good. The *Sarracenias* were in similarly creditable condition, one example of *S. purpurea* being over 3 feet in diameter and grandly coloured. Mr. Holmes followed, chiefly with *Sarracenias*, splendidly coloured plants of *S. Mitchelliana*, *S. purpurea*, *S. Chelsoni*, and *Nepenthes Hookeri* being the chief features of his collection. Mr. J. Morton, gardener to J. Fildes, Esq., Chorlton-cum-Hardy, was third with healthy but not so brightly coloured specimens. Only one collection was entered in the nurserymen's classes for ten plants, Mr. H. James being awarded the premier prize for the large specimens which were so much admired at the Crystal Palace Show recently.

Sonerilas.—It is seldom that a class is provided for these beautiful little plants, but at Manchester they receive the attention they so well merit. Two

collections of six plants were staged, Mr. Cole being first with charming specimens in pans, the foliage being beautifully marked; especially pretty were *margaritacea*, *Hendersoni*, and *argentea*. Mr. G. Williams followed with similar plants and varieties, except *amœna*, an extremely pleasing form with silvery dots on a deep green ground.

HERBACEOUS AND ALPINE PLANTS.

In the amateurs' class for thirty herbaceous and bulbous plants in or out of flower the first prize was taken by Mr. H. G. Bennett, gardener to T. Dickens, Esq., Higher Broughton, followed very closely by Mr. T. Entwistle, gardener to Joseph Broome, Esq., of Didsbury. In the first collection the most conspicuous plants were *Thalictrum aquilegifolium*, *Saxifraga pyramidalis*, *Hemerocallis flava*, *Trollius asiaticus*, and *Pæonia tenuifolia* fl.-pl. The second collection was on the whole, we consider, equal to if not superior to the first, but adjudication was difficult on account of the groups being arranged in different tents. The following plants were especially well shown:—*Lilium longiflorum*, *Lilium philadelphicum*, *L. Brownii*, *L. tigrinum* fl.-pl.; *Geum aurantiacum*, *Achillea tomentosa*, *Pyrethrum Penelope*, *P. amethyst*, *Delphinium Belladonna*, *Thalictrum purpurascens*, *Dodecatheon integrifolium*, &c., all of which give evidence of the best culture. In the class for thirty alpine plants Mr. Entwistle was well to the front with a most interesting and prettily arranged collection, neatly labelled, and in every way most commendable, including good pans of *Veronica prostrata*, *Saxifraga Mawiana*, *Saxifraga pyramidalis*, *S. Valdensis* (very fine), *Campanula Portenschlagiana*, *Saxifraga carinthiaca*, &c. In the class for twelve alpine plants the same exhibitor was a long way ahead with a charming group, including a magnificent pan of *Sempervivum arachnoidum* about 18 inches across, prettily covered with its white web; *Phyteuma comosum* well in flower, *Campanula thyrsoidea* with a magnificent spike over a foot long of its bell-shaped sulphur-coloured flowers; this and the last plant are very rare, and were never seen in better condition; *Dianthus glacialis*, *Allium pedemontanum* well in flower, and *Delphinium nudicaule*. The second prize was secured by Mr. James Mellor of Didsbury.

In the classes provided for nurserymen the premier position for sixty herbaceous and bulbous plants in or out of flower was awarded to Mr. A. Walkden of Sale with a very neat collection, mostly varieties of florists' flowers, including numerous *Pyrethrums*, double *Rockets*, *Pinks*, *Aquilegia cærulea*, *Cheiranthus Marshalli*, *Primula farinosa* (the best pan in the collection), *Delphinium nudicaule*, *Anthericum liliastrium*, *Geum coccineum* fl.-pl., *Thalictrum aquilegifolium*, &c. Messrs. James Dickson & Sons, Newton Nurseries, Chester, were a very close second, and their collection included some very fine plants, including a very large specimen of *Lilium longiflorum*, some of the stems carrying five fine flowers; the variegated form of this Lily was also good, and for such a rare form very striking; *Cypripedium pubescens*, *Narcissus bulbocodium*, *Gladiolus The Bride*, *Orchis foliosa*, very fine, with nine large spikes of bloom; *Aquilegia rubra-alba plena*, very showy; *Phlox ovata*, *Lilium auratum*, *Dianthus hybridus floribundus*, *D. hybridus Napoleon III.*, *Iberis gibraltarica hybrida*, *Ranunculus aconitifolius* fl.-pl., *Baptistia lutea*, &c., the whole forming a very attractive group. In the nurserymen's class for forty alpine plants Messrs. James Dickson & Sons of Chester were well to the front with a rich collection, including *Saxifraga cochlearis major*, *Ramonda pyrenaica* (a good pan), *Androsace lanuginosa*, *Phyteuma Scheuchzeri*, *Tropæolum polyphyllum*, *Erinus alpinus*, *Campanula Portenschlagiana*, *Sibthorpia europæa* and its variegated form; *Edelweiss*, a very fine pan; *Onosma taurica*, a most beautiful specimen, &c., the whole forming a most interesting and very much-admired group. Messrs. F. W. and H. Stansfield, nurserymen, Sale, were second, whose collection included a beautiful pan of *Saxifraga McNabiana*, one of the finest of the encrusted section.

Pansies and Violas.—Amateurs' classes.—Six Show in 8-inch pots: First Mr. T. Entwistle with *Jupiter*, *Queen*, *Clonard*, *Marquis*, *Royalty*, *Tickle*—a well-shown fine lot. Second Mr. James Mellor, Didsbury; third Mrs. C. Sergeant Sale. Six Fancy varieties in the same sized pots: First Mr. J. Blower, Pendlebury, with *Champion*, *Mrs. E. H. Wood*, *Richard Tonge*, *Gold-digger*, *Mrs. Scott*, *Plummer*, and *Mrs. Jamieson*. A very close second was gained by Mr. Entwistle with *Thomas Grainger*, *John Strattan*, *John Currie*, *Mrs. Felton*, *Christine*, *Miss Freeman*. Third Mrs. C. Sergeant, Sale. The Fancy varieties were excellent, and there was close competition, all the collections being good. Six *Violas* in 8-inch pots.—These were especially well shown. First Mr. Rose, gardener to D. McClure, Esq., Heaton Mersey, with *Pilgrimage*, *Holyrood*, *Picturata*, *Admiration*, *Alpha*, and *Sovereign*. Second Mr. T. Entwistle with fine pots. Third Mr. H. G. Bennett, gardener to Thos. Dickens, Esq., Higher Broughton. Nurserymen's classes.—Twenty Show varieties in 8-inch pots: There was very close competition in this class, the premier position falling to Mr. John Hayward of Cheadle near Manchester. Amongst the best varieties were *Yellow Queen*, *Black Sam*, *Duke of Perth*, *Dr. Hardy*, *A. Grant*, *Col. Wedderburn*, *Leith Walk Hero*, &c. Second Mr. W. Saunders, Leek. Twenty Fancy varieties in 8-inch pots: Mr. Hayward again taking the lead with a very even lot, although the flowers were not so large as could be desired. Amongst the best were *W. P. Fairgrieve*, *George Wood*, *Emblem*, *T. Grainger*, *Lady Hay*, *Countess of Strathmore*, *Miss Darling*, *Major Molesworth*, *Wm. Melville*, and *Mrs. Birkmyre*. Second Mr. F. Walkden, Sale; third Mrs. Eliza Mellor, Chorlton. Twenty *Violas* in 8-inch pots.—In this class Mr. Hayward most conspicuously took the lead with charming pots, very evenly put up, including *Pilgrimage*, *Sovereign*, *Admiration*, *Countess of Kintore*, *Beauty of Sale*, *Archibald Grant*, *Max Kolb*, and *King of the Blues*.

GROUPS.

Two classes were devoted to these, one for groups 30 by 15 feet, and the other 25 by 12 feet. In the first named there were two entries, both remarkably beautiful and novel, and though differing greatly in character they were nearly equal in merit as regards the taste manifested in their arrangement. Messrs. R. P. Ker & Son were awarded first honours for a group which could scarcely be surpassed in effectiveness and grace. There was a bold central mound of *Palms*, *Azaleas*, *Crotons*, *Ferns*, and *Cordylines*, the general groundwork being an undulating surface of *Adiantums*, with small *Crotons*, *Dracænas*, *Caladiums*, and *Pelargoniums*, with taller examples of the slender-leaved and drooping *Crotons* rising from amongst them. There was a neat margin of pink *Pelargoniums* alternating with variegated *Grasses*,

the general arrangement of the group being all that could be desired. Many admiring comments were passed upon this group by the visitors, and Messrs. Ker deserve the greatest praise for the care they gave to the work. Second honours were gained by Messrs. W. & J. Birkenhead, Sale, for an exquisitely graceful arrangement of Ferns, comprising a large number of choice varieties disposed in the most elegant manner imaginable. It has already been proved at the Brighton Shows what beautiful effects can be produced by tastefully arranged groups of Ferns; and Messrs. Birkenhead's group was welcome evidence that similar attempts to popularise this style of decoration are being made in the north. It is true that it is impossible to obtain from Ferns that brilliance which is sometimes desirable in a show, but as a rule there is abundance of flowers, and the soft varied shades of green form a most agreeable contrast and relief to the floral portion of an exhibition. In the group in question there was a central branching tree-like stem of cork, which was covered with Selaginellas and Ferns, the general foundation of the group being formed of Adiantums of approved species and varieties, with taller plants suitably introduced to vary the surface. The whole group was well finished, with the exception perhaps of the margin, which would have been improved had the pots been concealed.

The amateurs' classes contained three exhibits, but with the exception of the first-prize group from Mr. G. Smith they were rather deficient in tastefulness of arrangement. The leading group contained a due proportion of flowering and fine-foliage plants on a ground of small Ferns, Panicums, Crotons, and Caladiums, with a neat margin of Gloxinias. Mr. Roberts was second with a bright group, flowering plants predominating; and Mr. Paul was third with a rather rough group, including several very poor Azaleas.

NEW PLANTS.

Foremost with twelve new and rare plants were Messrs. R. P. Ker & Son, who staged good plants of the following, which have been previously described in these pages:—*Davallia fijiensis*, *Azalea roseiflora*, *Anthurium ferrierense*, *Schismatoglottis Robelini*, *Ficus elastica alba variegata*, *Aralia amboinensis*, *Licuala grandis*, *Areca Verschaffelti pendula*, *Cyathea Dregei*, *Carludovicia atropurpurea*, *Croton Flambeau*, and *Pritchardia Vuylstekiana*. Mr. H. James took the second place with *Dieffenbachia Jenmani*, *Acer polymorphum sanguineum*, *Anthurium Schertzerianum* Hendersoni, *Panax Victorice*, *Nepenthes Mastersiana nigra*, a very dark-pitched form; *Masdevallia Chelsoni*, *Selaginella involvens variegata*, *Anthurium ferrierense*, *Odontoglossum polyxanthum*, *Cypripedium superciliale*, *Lælia purpurata virginialis*, and *Oncidium nigratum*. Mr. Cole had the best six new and rare plants, which comprised the following:—*Sarracenia Swanniana*, *S. Atkinsoniana*, *Nepenthes bicalcarata*, with twelve grand pitchers and fully 6 feet in height, a magnificent specimen; *Dracæna Lindenii*, and *Nepenthes robusta*.

STOVE AND GREENHOUSE PLANTS.

The principal class was that for ten specimens, in which three collections were staged, including some beautiful plants. Mr. Cypher was adjudged premier honours for a fresh and handsome collection, comprising *Erica Cavendishiana*, grandly flowered and in most vigorous health, *Dracophyllum gracile* was similarly praiseworthy; *Hedera tulipifera*, *Franciscea eximia*, *Erica depressa*, 5 feet in diameter and superbly flowered, *Aphelaxis macrantha purpurea*, and *Bougainvillea glabra* were other noteworthy specimens in what was by far the best collection of these plants in the Show. Mr. H. James secured the second place with good examples of *E. Cavendishiana*, *Statice profusa*, *Genetyllis Hookeri*, *Anthurium Andreanum*, and *Erica depressa*. Mr. E. Tudgey was third with several well-grown Heaths. The first position with eight specimens was gained by Mr. C. Paul, who had *Stephanotis floribunda* of globular form, *Erica Cavendishiana* profusely flowered, and *Acrophylum venosum* very beautiful. Mr. G. Smith followed closely, his two best plants being *Erica perspicua nana* 5 feet in diameter, and *Allamanda grandiflora* about the same size. Mr. Roberts was third with smaller specimens.

Ericas.—Four collections of six *Ericas* were staged, two in the amateurs' and the same number in the nurserymen's class. In the former Mr. Cole took the lead with even healthy specimens, followed by Mr. G. Williams; while in the other class Mr. Cypher was the most successful, having half a dozen charming plants, 3 to 4 feet high, globular in form and profusely flowered. *E. Cavendishiana*, *E. ventricosa coccinea minor*, *E. affinis*, *E. ventricosa magnifica*, and *E. ventricosa rosea* were the varieties. Mr. Tudgey was a close second with neat plants well flowered.

Azaleas were not so good as might have been desired, with the exception of Mr. C. Turner's plants, which won him premier honours. These, as already noted, formed a beautiful central group, and were, as the Slough plants always are, in grand condition. The best *Pelargoniums*, both Show and Fancy varieties, were also from Mr. Turner, superbly flowered specimens, which Mr. C. Ryland of Ormskirk could not equal, though he showed some good specimens. The amateurs' productions in these classes were not of first-rate merit, *Cinerarias* being also rather poor.

Clematises were grandly represented by Messrs. Richard Smith of Worcester, who secured the first-prize for fifteen plants, globular specimens, well flowered and evenly trained. Messrs. G. Paul & Son, Cheshunt, had the premier position with twenty *Roses* in pots. The plants were 3 to 4 feet high, compact, healthy, and beautifully flowered, the colours of the blooms being especially rich and clear. Messrs. G. & W. Yates, Manchester, were second in the same class with dwarf specimens, and Mr. Tudgey was third with small plants.

Gloxinias and *Calceolarias* made a good display, the former being particularly well flowered. For ten *Gloxinias* Mr. F. Long, Prestwich, secured the first position with healthy plants bearing two or three dozen flowers. Mr. J. Franklin, gardener to P. Am. Ende, Esq., Whalley Range, and Mr. T. Eden, gardener to Mrs. Sargent Sale, following amongst seven exhibitors. Eight collections of ten *Calceolarias* were staged, Mr. G. Coulson, gardener to A. Schill, Esq., Didsbury, leading with compact healthy plants of a good strain. Mr. J. Hay, gardener to Mrs. Tootal, The Waste, Pendleton, followed; and Mr. C. Collings, gardener to J. M. Heatherton, Esq., Victoria Park, was third. In the nurserymen's class for twelve plants Messrs. R. P. Ker & Son and Mr. J. Taylor, Huyton, Liverpool, were the prizetakers.

Table Plants.—The competition was exceedingly keen in the class for six table plants, no less than eleven collections being staged, all neat and suitable plants. Mr. J. Hill, Rochdale, was first with graceful little specimens

of *Aralia leptophylla*, *A. elegantissima*, *Kentia Belmoreana*, *Pandanus Veitchii*, *Cyperus alternifolius variegatus*, and *Dracæna Bausei*, the surface of the soil being covered with *Sibthorpia europæa* and *Selaginellas*. Mr. G. Park, gardener to R. H. Harrington, Esq., Wigan, and Mr. T. Moss, Preston, were the other prizetakers, each showing neat elegant plants.

Bouquets.—Several very tasteful bouquets were entered. In the amateurs' class for two Mr. Plant, gardener to R. P. Gill, Esq., Woodheys Hall, Ashton-on-Mersey, was first with a choice arrangement of Orchids, *Roses*, *Gloxinias*, *Stephanotis*, *Ixoras*, *Dipladenias*, and Ferns. Mr. Collins was second, chiefly with *Eucharis* and Orchids, while Mr. Elphinstone, gardener to J. Heywood, Esq., The Grange, Stretford, was third with a combination of *Maréchal Niel* *Rose* buds and *Epidendrum vitellinum* flowers. For three bouquets Mr. Cypher was first, having handsome bouquets of Orchids, *Pancratiums*, and white *Lapagerias*; Mr. Chard, Clapham Common, Mr. T. Walkden, Sale, and Messrs. Sherratt & Pointon, Congleton, following.

FRUIT.

Though the display of fruit was not large it was good for the time of year, the black Grapes being especially well shown, good in bunch and berry, and generally well coloured. Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, was the premier exhibitor of eight dishes of fruit, showing Foster's Seedling and Black Hamburgh Grapes, the former of good size and the latter well coloured. A neat Queen Pine weighing 3½ lbs., good Elrue Nectarines, fine Stirling Castle Peaches, ripe Brown Turkey Figs, and a richly coloured Golden Gem Melon. Mr. McIndoe, gardener to Sir Joseph Pease, Bart., M.P., Hutton Hall, Guisborough, was second with Early Saumur, Frontignan, and Madresfield Court Grapes, the latter well coloured, Best of All Melon finely netted, Bellegarde Peaches large, and Lord Napier Nectarines scarcely ripe. Mr. Upjohn, gardener to the Right Hon. Lord Ellesmere, Worsley Hall, was third, having Black Hamburgh Grapes rather wanting in colour, and Peaches and Nectarines scarcely so ripe as might have been desired.

Fourteen exhibitors competed with two bunches of black Grapes; Mr. Church, gardener to C. S. A. Mellussen, Esq., Brodsworth Hall, Whitefield, leading with Black Hamburgh, fine in bunch and berry and handsomely coloured. Mr. J. Londen, gardener to Thos. Barnes, Esq., The Quinta, Chirk, was second with the same variety smaller in berry; and Mr. C. Breese, gardener to Mr. Ackers, Moreton Hall, followed with small bunches. Nine pairs of white Grapes were entered, Mr. Londen securing the first position with Muscat of Alexandria not fully ripe. Mr. R. J. Anson, gardener to W. Bretherton, Esq., Euxton, Chorley, was second with Foster's Seedling; and Mr. Miles third with the same. Canon Hall Muscat and Duke of Buccleuch were also shown, but were not in good condition. For one Pine Apple Mr. G. T. Miles was first with a Queen weighing 4 lbs., beautifully even and well ripened. Mr. Clayton, Grimston Park, was second with Smooth Cayenne neat and even. Mr. Miles was also first with two Pines, Queens, 4½ and 5 lbs. respectively. Mr. McIndoe was second with a smaller Queen, and Mr. Breese third with the same variety. Strawberries in pots were not very fine, Mr. G. Smith, Mr. Chuck, and Mr. Upjohn securing the prizes, the varieties best represented being Vicomtesse Hericart de Thury and La Grosse Sucrée.

There was a fair show of Asparagus, Mr. G. T. Miles securing the first prizes for eighty and fifty heads, Mr. Campbell, gardener to T. Higson, Esq., Oakmore Hall, Mr. T. Pitt, gardener, Berry Hill, and Mr. Mossman, gardener to G. Pollock, Esq., Windlesham, following.

Miscellaneous.—A large number of groups and collections were contributed not for competition, and added considerably to the interest of the Exhibition. Mr. B. S. Williams, Upper Holloway, was the principal exhibitor, and had a magnificent group in the exhibition house, comprising a large number of choice Orchids, new and rare flowering and fine-foliage plants very tastefully arranged. Messrs. F. and A. Dickson & Son, Chester, had a choice collection of stove and greenhouse plants, including a good plant of *Asparagus virgatus*, with a good proportion of the bright and pretty *Boronia elatior*; Messrs. Cutbush & Son, Highgate, London, had a large and handsome collection of greenhouse plants, including a great number of well-grown hard-wooded plants; Messrs. J. Laing & Co., Forest Hill, London, sent some new tuberous Begonias and Caladiums; Mr. C. Turner, Slough, showed a fine group of *Roses* in pots; Messrs. J. Waterer & Co., Bagshot, had extensive banks of *Rhododendrons*; The Liverpool Horticultural Company (John Cowan) limited, had a miscellaneous collection of Palms, *Pelargoniums*, and *Hydrangeas*; Messrs. R. B. Laird & Son, Edinburgh, sent several boxes of *Violas*, representing many choice varieties; and Mr. T. Bethell, Liverpool, sent samples of their unique folding boxes. Mr. Miles had a fine dish of Stamfordian Tomatoes; Mr. Milne, Vale Royal, dishes of Nectarines and Strawberries. For most of the above extra prizes were awarded.

THE FLOWER TENT AT THE BATH AND WEST OF ENGLAND SHOW AT MAIDSTONE.

JUNE 2ND TO 6TH.

THIS tent was as usual under the able and tasteful management of the Rev. J. T. Boscawen, and the general effect of the Exhibition was greatly admired, and never before have the Kent folks been treated to such a show of Orchids. The entrance was an improvement on former shows, as the local nurserymen, Messrs. George Bunyard & Co., had planted trees and shrubs, with a border of *Rhododendrons*, giving it a bright appearance; at the lower end a fine rockery was erected, and so naturally that "it looked as if it had grown there," and formed a feature in the tent. The stone used was a limestone belonging to the lower greensand formation, locally known as Kentish rag, and supplied from the Iguanodon quarries of Messrs. H. H. Bansted & Son (this firm sent a quantity to Broxbourne for Messrs. Paul's new rock garden). On entering, a prominent feature were the Orchids from D. Bain Crawshaw, Esq., of Rosefield, Sevenoaks, among which were a fine series of *Cattleya Mossiae*, examples of *C. gigas*, *C. Mendelli* and *Warnerii*, a fine variety of the latter having flowers 9 inches across, the corolla being very wide; the central plant was a grand *Odontoglossum vexillarium* with fifty flowers. Other fine examples being *Epidendrum vitellinum majus*, *Masdevallias Harryana*, *Chimæra*, and *H. lilacina*; *Phalænopsis grandiflora* fine,

Oncidium ampliatum majus, *Dendrobium chrysotoxum* and *Bensoniæ*; and *O. Pescatorei* with forty flowers. Altogether a grand group.

Another group of Orchids was sent from Preston Hall (Henry A. Brassey, Esq., M.P.; Mr. Waterman, gardener), who also sent a set of the finest *Marguerites* we have seen, perfect globes of flower. The best examples among the Orchids were a pair of *O. vexillarium*, a pair of *Vanda suavis*, *Aerides odorata* and *Lobbi*, *Dendrobium suavisimum*, and *Lælia purpurata*.

G. Ashley Dodd, Esq., Surrenden Park (Mr. Wilson, gardener), sent some grand specimens of Palms—*Phoenix reclinata* and *Cocos Weddelliana* being very large; a fine pair of *Crotons*, and a large well-flowered *Erica Cavendishiana* being among his exhibits.

G. A. Spottiswoode, Esq., Coombe Bank (Mr. Bolton, gardener), enriched the Show with well-grown examples of *Latania borbonica*, a *Kentia*, a pair of *Statice*s, large *Dicksonia squarrosa*, *Areca Verschoffeltii*, *Cycas revoluta*, and an *Anthurium Schertzerianum* carrying many fine spathes.

Roger Leigh, Esq., Barham Court (Mr. Haycock, gardener), sent some very large Palms, among which *Chamærops excelsa*, *Seaforthia*, and *Cordyline indivisa* were conspicuous, and gave great character to the Show.



Fig. 105.—*Calochortus Benthami*.

From Linton Park (Mr. McKenzie, gardener) came a large number of *Dracænas*, Palms, Ferns, &c., all exhibiting high culture.

James Whatman, Esq. (Mr. Maclean, gardener), sent some useful Palms, Ferns, and *Gloxinias*.

W. E. Brymer, Esq., M.P., Dorchester, had entered for the Orchid prizes, but at the time of reporting they had not arrived; but no doubt the winner at the Botanic would be hard to beat.

Among the trade groups the most interesting lot came from the Colchester New Plant Company, Japanese Maples being among the most numerous. In this lot we noticed some curious combination plants with many kinds on one stem, *Acer palmatum aureum* (lately certificated), *A. p. dissectum ornatum*, *rubro-marginatum*, *pictum marmoratum*, *seven-lobed sanguineum*. A large number of these were also used as top specimens for the rockery, where, owing to the light and position, their beauty could not be seen to advantage. Among the Company's Orchids was a grand *Cattleya Mossiæ* with thirty flowers, *Hystrix luteo-purpureum*, and *Odontoglossums vexillarium* and *Alexandræ* in fine varieties. The same firm showed a fine lot of *Cypripedium spectabile*, which is there found easy of pot culture.

Messrs. J. Laing & Co., Forest Hill, S.E., sent an effective group of *Begonias*. Among the doubles *The Duke*, orange-scarlet; *Prince of Wales*, vivid velvety crimson; *Mrs. Brissenden*, rose, were conspicuous. The single flowers were very large, the seedlings being nearly equal to the named

sorts, *Lady Chesterfield*, *Marchioness of Bute*, *Ball of Fire*, and *Snowflake* being the best.

Messrs. Richard Smith & Co., Worcester, sent a group of *Clematis*, globe-trained, the best being *Madame Desfosse*, white, and *Duke of Norfolk*, lavender.

Messrs. George Bunyard & Co. of Maidstone staged a group of market *Pelargoniums*, *Volonté Nationale*, *Ida*, *St. Mandé*, and *Lady Isabel* being conspicuous; also plants of the new purple-leaved *Prunus Pissardii*, which is a telling plant. The same firm sent rock plants in variety, which added greatly to the effect of this group. We also noted some grand examples of *Adiantum farleyense*, and a well-grown *Asparagus plumosus*, the owners' names not being upon them.

Prizes were given for Orchids, fruit, and vegetables, but at the time of reporting they were not awarded.

The Exhibition is held about a mile from the town of Maidstone, and commands charming views of the Medway valley, the Backbone of Kent (*Blue Bell Hill*) and the *Detling hills* being conspicuous in the background. The Show was largely patronised on the opening day.

EXHIBITING CARNATIONS.

I BEG to say, in reply to "Onwards" on page 419, and as one of those who may be classed as a large grower, that I never exhibited a flower, plant, or fruit that I did not grow; and further, that I never gave, lent, or sold a plant, flower, or fruit to anyone else to exhibit. I have no knowledge that it has ever been done at any of the shows of the National Societies, and as one of the Honorary Secretaries I have a right to more definite information. I trust that whatever knowledge "Onwards" possesses of this matter he will allow it to be utilised to hunt up the real offender, if there is one. I am sure the Editor will feel with me that to allow such an imputation to rest upon a Society that calls itself "National" would be a very grave misfortune indeed.—J. DOUGLAS.

[We are quite satisfied that our correspondent "Onwards" has no object but eliciting truth. He is, as his letter suggests, desirous of seeing floral societies flourish and made acceptable to the greatest possible number of exhibitors, large and small.]

CALOCHORTUS BENTHAMII.

For this beautiful little Californian bulb Mr. T. S. Ware, Tottenham, was recently awarded a certificate at one of the Royal Horticultural Society's meetings. It is somewhat nearly related to *C. pulchellus*, but is distinguished by its bright yellow flowers, upon the upper surface of the divisions of which are thickly clustered a number of short yellow hairs. It is very dwarf, seldom exceeding 8 inches in height, but is free both in flowering and growth. It is particularly well adapted for culture in pots, and with the protection of a cool frame it develops its flowers early in the year, and is much better than when grown in the open border. The species is a native of the Sierra Nevada near Mariposa, and has only been in cultivation in England for six or seven years, so that it is as yet comparatively unknown. Another pretty companion for the above is *C. Maweanus*, which has bluish purple flowers about the same size as *C. Benthami*, and of similar habit. This is, however, found near the coast, and in the neighbourhood of San Francisco.

PLANT CLEANING.

In all gardens where plants are grown largely the time and labour required to keep them clear of insects is enormous; but stove plants need the most attention, because insects multiply with greater rapidity in heated than in cool structures. I have had every opportunity of testing many different systems of eradicating these pests, but the majority of them have proved unsuccessful, and resulted only in keeping the insects in check and the occupants of the houses in a presentable condition. This state of things is not always due to insufficient labour, as many suppose, but because some system is not perseveringly followed. Plant-cleaning in many gardens is performed in such a way that it has to be done again at intervals of a few weeks. In many places the method practised is to select the worst plants, and after they are cleaned and returned to their former positions they soon again become infested. Another system is to allot to one man a certain number of plants, say the *Crotons*, while another does the *Ixoras* and *Gardenias*, and so on, and it not unfrequently happens that by the time a man has "gone over" the plants apportioned to him the first plants cleaned are as bad as ever, and must be done again.

Continually sponging plants to keep them clean is wrong, even if the solution used for the purpose was strong enough to kill the insects, but in many instances it is not. Instead of proving an advantage it is often, in the end, injurious to the plants, as it is almost impossible for the most careful man to carry out this operation without injury to the foliage. Careless plant-cleaning not only brings insecticides capable of doing their work, if properly applied, into bad repute, but occasions double

the labour that is really needed. There is no necessity for half the plant-sponging now practised in gardens, if only some reliable insecticide were judiciously employed.

There is no insecticide capable of cleaning plants thoroughly of scale and bug by one application without injury to the plants, not even petroleum, which is the most effectual insect-killer. If petroleum be used, say at the rate of 1 oz. to the gallon of water, well mixed in the way described so many times in these pages, this solution will kill scale and bug if the plants are thoroughly syringed. Bug is the most difficult to destroy, because whatever solution is used it runs off the insects, and they can only be destroyed by syringing the solution upon them with force. With the greatest care in syringing the plants over a vessel containing the wash some will be left, and also the old brown scale that forms the covering to the next generation. Suppose the house is filled with Gardenias. Every plant must be done, and then the house well syringed with the same solution or a little stronger. After syringing with petroleum and water it is necessary to shade the plants from the sun until the oil has evaporated. It must be understood that the plants are not to be allowed to be badly infested again before they are syringed the second time. On the contrary, directly young insects are visible, whether bug or scale, they should be thoroughly attended to. This should be repeated until the whole are destroyed. It may be necessary to syringe the plants half a dozen times at intervals of a few weeks, but it is better to do this and have the plants and houses clean than to be sponging them for years. If the stove contains a mixed collection of plants, the Ferns or any other tender-foliaged plants that will not bear such a strong solution should be placed by themselves and given a weaker solution, but every plant that will bear it should be treated the same as the Gardenias.

To show that the system recommended will prove effectual if properly applied and followed up from time to time as the insects appear, my method of clearing a vinery from mealy bug may be briefly related. After the fruit was cut the Vines were syringed with a mixture of petroleum and water, at the rate of 1½ oz. of oil to the gallon of water, every part of the house as well as the Vines being thoroughly soaked. This operation was repeated four times, the last after the Vines were pruned, and this season, so far, we have not found a trace of bug. From this treatment, however, Orchids must be exempted.

Petroleum may not prove the safest insecticide in the hands of the inexperienced, for if not applied with caution irreparable injury might result. Fir-tree oil is a reliable insecticide, and if used at the rate recommended by the makers it will effect the same result as the petroleum. There are other good mixtures sold for the purpose which are preferred by some people, and if used on the same principle will effect the destruction of such pests that infest our plants.

The softsoap mixture as a preventive against mildew on Roses, recommended by me frequently in these pages, is ineffectual if the plants are allowed to become infested before it is applied, but if used when the plants are clean they are easily kept clean with fine dark glossy foliage. It is exactly the same with stove plants when they are badly infested. They require constant attention and strong measures to clean them; but when once clean, weak solutions applied occasionally or daily, mixed with the water when syringing the plants, will act as a good preventive.—N. G.



KITCHEN GARDEN.

JUNE is generally a satisfactory month in the kitchen garden, as work is not very pressing, and valuable returns for winter and spring expenditure are forthcoming in the form of many delicious young vegetables. We have now plenty of new Potatoes, Peas, Cabbage, Turnips, Carrots, Globe Artichokes, Asparagus, &c., with an abundance of all kinds of salading, and these never fail to give satisfaction in the kitchen at this season. The supply, however, must not be temporary where the demand is constant, and operations of sowing, planting, and cultivating must go on unceasingly.

Runner Beans.—Earth up those now well above the soil, and then stake them. Stakes are not always readily obtained. They ought to be from 6 feet to 8 feet high, but where such cannot be had shorter ones must do, and these may be 3 feet or so. In their case the runners may be topped when they reach the proper height, continuing the process as often as is

needed. Sow another row to succeed those put in some time ago. The only way of securing a good supply of pods until November is to sow in succession until the end of June.

Broad Beans.—The earliest of these are now nearly ready, and in cases where they are behind the tops should be nipped out of every stem above a few of the clusters of flowers. This will make them pod immediately, and any which show a disposition to become too tall or top-heavy should be treated in like manner. Sow a succession of any free-bearing sort. Strong rich soil is the most suitable for them.

Earthing-up Celery.—Where the early plants are growing fast and assuming large proportions they should be earthed-up. This operation cannot be too carefully performed. If the soil is allowed to go into the centres of the plants at the first earthing they will be spoiled. To begin with, the smallest of the outside leaves which cluster round the bottom of each plant should be drawn off, then a piece of matting tied round each plant will hold it together until the soil is put round, when the tie can be taken off again. The earth should not be thrown roughly against the plants, but broken up very fine, pressing it against the plants with the hands. A depth of 4 inches is generally enough to place against them at one time. Sow a pinch of Celery seed in a favourable spot in the open to supply plants for a late batch. Water all Celery copiously in very dry weather.

Radish.—Sow in the coolest corner of the garden. Too thick sowing is a great and common mistake with Radishes. When the plants are so close to each other three parts of them have no room to develop, and they are consequently lost. Avoid this.

Spring Cabbages which have been cut may be treated in two ways. One is to allow them to remain, and in six weeks or two months they will have formed many useful side heads; the other is to pull the stumps up and occupy the ground with another crop. Both ways are good, and we leave cultivators to choose between them.

Onions.—Autumn-sown Tripolis and others which are showing flower stems should have these pinched off. They will then bulb more freely, and although they may not become so large as those which have not "bolted" they will prove useful, and should be pulled up first, leaving the best plants to make large bulbs. Where spring-sown Onions have failed here and there in the rows thin them out from the parts where they are growing close, and make up the blanks in the rows. If this is done when the soil is wet or on a wet day there is no danger of any failing to grow. Last year some of our best bulbs in the autumn were the produce of plants dibbled in during the latter part of May and early in June.

Globe Artichokes.—As the heads of these become large enough for use cut them at once, as they lose their value when old, and, worse still, they hinder the young heads from swelling so freely as they would do if not checked.

Tomatoes recently planted in the open should have plenty of clean water when the weather is dry. Stop all side shoots, and keep the main stem constantly secured to the wall or trellis.

When rain occurs take the favourable opportunity of planting out Broccoli, Savoys, Brussels Sprouts, &c. Throughout the season look out for any vegetable showing a distinct type and improved form. Mark it and save for seed. Hand-weed between and amongst close-growing seedlings and hoe the open spaces.

FRUIT FORCING.

VINES.—Early Forced House.—When the early Vines have been cleared of the fruit afford a thorough supply of tepid liquid manure to the inside borders, and syringe daily thoroughly until the foliage is cleaned from all accumulations of dust and insects. The ventilators may remain constantly open. When the Vines commence making fresh laterals maintain an even growth by pinching out the points of those laterals that grow too vigorously, and so prevent their depriving the weak parts of the nutriment essential to the proper development of the buds that are to give next year's crop.

Houses with Ripe Fruit.—Keep cool, ventilating freely, and a double thickness of herring nets placed over the roof lights will do much to keep Hamburgs from losing colour, as they often do when exposed to powerful sun over a lengthened period. Keep the laterals closely pinched, not allowing them to crowd the principal foliage, which it is important to keep clean and healthy to the last. A moderate amount of moisture in the house will not injure the Grapes at this season, and is absolutely essential for the benefit of the foliage; hence the borders and other available surfaces may be sprinkled in the morning of fine days, and with proper ventilation there will not be any damage from the moisture to the Grapes.

Houses with the Grapes Ripening.—When the Grapes commence colouring, both the outside and inside borders should be given a thorough soaking with tepid liquid manure, then mulched with short manure, and this will be sufficient in most instances to carry the fruit to maturity. If the weather be wet it will not, of course, be necessary to water the outside border. Keep a good moisture in the house by damping available surfaces in the morning, and again in the afternoon if the weather be bright, as the Grapes swell considerably in ripening, and keep a gentle warmth in the pipes so as to admit of a circulation of air constantly. A temperature of 80° to 85° should be secured during the day with sun, and 70° to 75° without, allowing the temperature to fall to 65° (or even to 60° if the Vines are carrying heavy crops) through the night. As the Grapes advance in ripening lessen the atmospheric moisture, but avoid a parchingly dry atmosphere, or the foliage will be seriously damaged to the prejudice of next year's crop.

Vines Swelling off their Crops.—Allow as much extension of the laterals as the space admits without crowding the principal foliage, and

admit air early in the day, increasing it with the solar heat, maintaining the temperature at 80° to 85° through the day, closing early in the afternoon with plenty of moisture in the house, and damping the floors and borders with guano or liquid manure before nightfall. Fire heat will only be necessary to maintain a day temperature of 70° to 75°, and to prevent it falling below 65° at night. Give tepid liquid manure copiously to the inside borders, and outside as well if the weather be dry, mulching both with short sweetened manure.

Late Houses.—The late-keeping Grapes ought to be set by this time, and as they swell rapidly at this season the thinning must be attended to without delay. Make choice of medium-sized tapering bunches, and thin them rather more severely than those not required for hanging through the winter. Lady Downe's, Muscats, and others liable to scald when passing through the stoning process must be closely attended to, the best preventive being keeping the houses warm at night to prevent condensation of moisture on the berries, and freely ventilating in the early part of the day to avoid a sudden rise of temperature.

Melons.—Where these are esteemed a good late summer supply can be obtained by utilising the pits and frames that have been employed for hardening off bedding plants. It is better to make up a slight hotbed; but this is not absolutely essential, as with the frames stood in a warm position with a southern exposure, and a barrowful of soil in each light, Melons will do capitally. The soil should be strong, and may be made porous by adding a fourth or sixth of lime rubbish. Tread firmly and keep the frames close for a day or two, so that the sun may warm the soil, and insert a strong plant in the centre of each light. Should the weather be bright shade for a few days, and beyond giving a good watering when planting none will be required for some time; but the bed and plants will need syringing every afternoon on fine days at closing time, or from 3 to 4 P.M., and air will need to be given early, or from seven to eight o'clock in the morning. The time, however, of giving and taking off the air will need to be regulated by the weather. Houses in which the fruits are approaching maturity should be ventilated freely, and a rather high and dry atmosphere maintained. Attend to stopping, tying, thinning, and otherwise regulating the growths in other departments. Impregnate the flowers daily, and where the fruit is set use the syringe freely twice a day when the weather is bright as a preventive of red spider.

Cucumbers.—In successional houses, pits, and frames attend regularly and frequently to the stopping, thinning, tying, and regulation of the shoots, removing old growths, so as to make place for new, and cutting off all superfluous and badly shaped fruit. Maintain a steady bottom heat and an equable temperature; sudden checks whilst the fruit is swelling will probably result in deformed, badly swelled, and ill-flavoured fruit. Plants that have been in bearing some time should have a top-dressing of three parts loam and one of decayed manure, giving tepid water, and when the roots are working freely in the fresh soil mulch with a couple of inches thickness of well-decomposed manure. Thin the shoots well out and encourage fresh growth in their place. Syringe twice a day during favourable weather, and close as early as is safe in the afternoon, so as to make the most of the sun's heat.

PLANT HOUSES.

Epacris.—Plants cut back and placed in heat or a close structure have started freely into growth, and should be removed into cold frames. If left too long in a close atmosphere after they have commenced active growth they soon draw up weakly, which is detrimental to their well-being. After they are first placed in frames they must be carefully and gradually prepared for more airy conditions, but this must not be done at once or the plants will be checked. Repotting where required must be completed, and the plants treated afterwards with care until they are rooting freely in the new soil. Those that do not need potting may now have an application of artificial manure. These plants must be watered with great care, never allowing them to suffer from an insufficient supply, or their fine roots will soon be injured. Light shade should be applied during bright weather, but only sufficient to break the full force of the sun. Syringe the plants twice daily, and close the frame early in the afternoon while the sun is upon it.

Winter-flowering Heaths.—The early-flowering varieties will now be growing vigorously, and should have abundance of air during the day, and when very mild a little may be left on all night. During bright weather and drying winds it is much better to keep the frames moderately close and shade liberally instead of admitting air. This prevents the plants drying too quickly, which soon proves injurious, the foliage turning brown and falling. These plants must not be crowded together, but should have plenty of room to develop. Those rooting freely and growing vigorously may have abundance of water from the present time.

Summer-flowering Heaths.—These are much better in pits and frames if they are not too large for such positions than in warm dry houses. They should stand upon some moisture-holding material, and if possible should occupy a glass structure with a northern aspect in which the atmosphere at this season can be kept more suitable for them. When grown in this position less shading is required. If the plants are grown in a southern aspect the strong sun only should be screened from them.

Cinerarias.—The plants from the earliest-sown seed are now in 3-inch pots. After potting they should stand upon ashes in a cold frame where they will receive abundance of light, and yet be shaded from strong sun. Pot these plants from time to time as they require it in good loam, with a third of leaf mould and manure, and sufficient sand to make the whole porous. Watch for aphides, and if they appear fumigate the plants. Water liberally when the plants are growing freely, and give them abundance of air. Prick out later seedlings into small pots and

grow them under cool treatment. Another pinch of seed should be sown and the pan stood in a cold frame.

Celosias.—The earliest plants are now bearing some fine plumes of flowers, and can be removed to the conservatory if wanted there. They will scarcely have attained to their full beauty, but are sufficiently showy for that structure, but should not be crowded amongst other flowering plants, or their full development will be impeded. Succession plants will be ready for 6-inch pots—a suitable size for decoration, and should be grown under cool treatment. No artificial heat will be needed from this date, but the frame or house in which they are grown should be closed early in the afternoon when the plants are syringed. Red spider is the greatest enemy to these plants, and they must be syringed freely. Plants in the seed pan should be placed in small pots when large enough, and be brought on gradually. A little more seed can be sown to yield a supply of plants for the conservatory from November to the end of January, and another pinch of seed a fortnight later for affording plants for growing in small pots.

THE FLOWER GARDEN AND PLEASURE GROUND.

Roses.—Where the quality of the blooms is of more importance than the quantity, a considerable amount of thinning-out the growths at the present time, and the buds later on, is necessary. Every shoot reserved should have room to develop, and as a rule the greater portion of the inside buds should be rubbed out. The thinning, however, should be gradually performed, as if only a few shoots are retained in the first instance there will be none to replace any that may be damaged by the grubs or caterpillars. Wherever any of the latter are found enrolled in the young leaves they must at once be destroyed, or the points of the shoots will quickly be eaten. Hand-picking is the best and only sure remedy for getting rid of these troublesome pests. Aphides are also very prevalent this season, and these also should be destroyed as much as possible, nothing being better for the purpose than tobacco water freely diluted according to its previously ascertained strength, and syringed over the plants occasionally, and preferably in the evenings. A decoction made by boiling 1 lb. of quassia chips and 2 lbs. of soft soap in a gallon of water for an hour, and then strained off, will also be found serviceable for the destruction of both mildew and aphides on Roses. This also should be used according to its ascertained strength, but as a rule one pint added to four gallons of soft water will usually be found strong enough, and it should be frequently syringed over the plants. Autumn-struck Roses should not be lifted in any way, but the ground about them may well be lightly hoed and a mulching of short manure given them. Support the strong young growths forming of last season's budded Briars, or a heavy wind will blow them out; also keep the shoots on the Briars or stems closely rubbed off, and the suckers pulled away. Thin-out the shoots on the Briars to be budded this season, leaving two or three, according to the vigour of each, evenly disposed near to the height required for the future head.

Planting Flower Beds.—By the time this is in print bedding-out will be considerably advanced in the majority of gardens. Those beds previously occupied by spring-flowering plants will this season be very dry and much impoverished, and unless freely manured will not suit many of the summer occupants. A good soaking of liquid manure will also do much good, both before planting and subsequently when the plants are well established. We prefer to plant during showery weather, but if it is necessary to proceed during very dry hot weather, as at present, the surface of the beds are watered a few hours prior to planting, this enabling us to thoroughly break-up the soil. The roots of all plants, whether in pots or transplanted from frames, should be in a moist state when planted, as if dry the greatest difficulty will be experienced in moistening them again, and unless this is done the start will be very slow. Plant very slightly below the level, well work the trowel round the roots, and fix them firmly. If a slight basin is formed round the stem of each plant they can be kept more easily moistened during dry weather, and when the plants are well established the surface may be levelled either after a soaking rain or a good watering. Where the plants are kept pegged down, and which is necessary if a flat and neat surface of colour is required, they should be planted in a sloping direction, this admitting of their being safely and evenly spread over the ground. The outer lines or edgings should be first planted, the remainder of the beds being afterwards filled in. For long straight borders use the garden line, and for the principal circles and lines near the edges of beds mark the places for these with either large wooden compasses or with the back of a rake, as it is a mistake to attempt to plant quickly and neatly without some kind of guide.

Styles of Planting.—Where there is a large expanse of turf, with perhaps heavy backgrounds of trees and shrubs, the beds cannot well be made too gay, but a number of beds filled with masses of bright colours are by no means suitable for small lighter places. In the former case masses of one kind of Pelargoniums, Heliotropes, or Verbenas, edged with a broad band of such plants as Lobelias, Ageratum, Pyrethrums, Alyssum, Cineraria maritima, and Ivy-leaf Pelargoniums are the most effective. Mixtures are pleasing and appropriate in any garden. The centres of large beds filled with a mixture of purple Violas and Silver, Golden, or Bronze Pelargoniums; Silver-variegated Pelargoniums and Verhena venosa or V. Purple King; pink-flowering Pelargoniums or Iresine Herbstii and yellow Violas; white Verbenas or Cineraria maritima and Salvia patens; white or yellow Marguerites and single Petunias or seedling Verbenas; Iresine Lindenii and Gazania splendens; Mrs. Pollock or some other Golden or Silver Tricolor Pelargoniums and seedling blue Lobelias; Tuberous-rooted Begonias and Mesembryan-

themum cordifolium variegatum, all with suitable edgings, are worthy of a trial. Subtropical plants are suitable either for massing or for mixing with any of the above-mentioned kinds, but as most of them are easily injured by cold they should be the last to be planted. Rather, however, than they should become stunted and root-bound a small shift or a rich top-dressing should be given.

THE BEE-KEEPER.

THE SEASON—SWARMING AND SUPERING.

So far this year the bees have had a hard struggle to exist. The year opened favourably on them with less mortality than ever I experienced. Large patches of brood were in every hive during January, and breeding was unremittingly carried on throughout the cold winds of that month. Many young bees were flying in February. Flowers and sunshine came with March, and good hives collected much pollen from the Crocuses, Willows, Tussilago, &c. Many hives were then advancing rapidly, and were well forward, promising early swarms. April we welcomed, but it brought thunder, snow, and frost of unusual severity—bleak cold weather, with scarcely a ray of sunshine to gladden us. This lasted until 23rd May. Flowers had almost disappeared; those not destroyed looked sickly, and dead bees strewn every path. Hives that looked like swarming seven weeks ago have made no progress, while many that by this time with mild weather would have been strong are so reduced in bees that they will be unable to do more than keep themselves alive. Our locality is, however, not a sheltered one; there is a paucity of trees in the district, arising through proprietors of small estates cutting down every tree that can be turned into cash, and the ground they occupied made available for cultivation.

In more sheltered places the bees had a better opportunity of making progress, not from the mere shelter alone, but from getting the advantage of the flowers sheltered and preserved by the trees, which also many of them yield large quantities of honey and pollen. While our bees in an unsheltered district have been much checked and retarded, those in sheltered situations have advanced, and swarming commenced at Crossford near Carlisle in the beginning of May, but the weather since then and until the 23rd of May, when a favourable change took place, was very untoward. With fine weather now the bees from their contiguity to plenty of fruit and Sycamore blossoms will make rapid progress, and if the apiarian is careful to sustain the breeding in rainy weather these early swarms, with the further advantage of the Charlock, Clover, or Heather harvests may rise to a great weight; indeed, I have known such swarms, including the old stock and the second swarm, to rise at the end of the season to 600 lbs. It is under such favourable conditions that early swarming takes place, which makes the swarming system so profitable. In later districts, such as where I reside and where swarming is much later, it is impossible to have swarming hives crowded with bees in time to attain such results, hence the reason we have to carry out the non-swarming system to the extent we do; in fact, though we get early swarms, they, from the paucity of flowers, the trouble and expense of feeding, with loss of bee life resulting therefrom, would be greater than any profit that could be made.

Under the swarming system the greater portion of the honey must be dripped, while under the non-swarming system the surplus is obtained from supers in its purest form, but under either system in wooden or straw hives the most proper and profitable course to pursue for honey in any form is to extend the hive vertically. The circle is the natural form in which bees cluster and carry on the internal economy of the hive. Whenever that form is departed from to the oblong the bees are handicapped, working at a disadvantage, with less profit to the owner. I have seen a number of instances where bees stored honey 3 feet from their hive, and "R. S." had a bellglass finished in a like manner, but though bees do this in a warm season it is no argument in its favour. We avoid inducing bees to work by feeding at any time when they should be kept quiet, but when the weather is favourable for honey-gathering we never allow them to relax work, and we assist them as much as possible. In a proper hive, of which the Stewarton may be taken as a type, the bees are enabled to keep up the degree of heat necessary for the secretion of wax and comb-building, even though the temperature becomes low at night or at any time. With plenty of newly built comb the bees are ready for the collection of honey when it is secreted in the flowers, hence the quantity stored in such hives is greater than in those of an oblong shape, when, on the temperature becoming low in such hives, bees cease to secrete wax and build comb, retreating at night from their labour, then in the morning resume comb-building, while those on the Stewarton principle are rapidly filling their night-made comb with honey. The greatest harvests of honey

recorded are from those wrought on the vertical principle—for example, S. Bevan Fox with his telescope supers, and "A Renfrewshire Bee-keeper" with 200 lbs. at one lift of pure super comb from one hive, and many others equally successful, including myself, with the same kind of hives. While, however, I give my approval of this system, I by no means wish to discourage other systems, because many hives can be cleared from objectionable points they may possess.

With a few remarks on supering I will close this article. It is a fact that bees naturally incline to ascend to supers rather than work laterally. They also store more honey in proportion in large supers than in small ones. There, again, the Stewarton comes to the front; no matter how many supers there be they act as one, while all are divisible to a comb. Sections are preferred by many, but I think they have had their day. I find the bees do not take to them so readily as supers from the obstructionable bottom of the section, then in most cases a cover of sections over a hive are in three. In my own case I work sections (no matter how many) in one compartment, beginning with few and increasing the number as required. It is accomplished as follows:—I place frames, minus the top bar, in a case the same size as the hive, which is supplied with a dividing board. These frame ends have a ledge to keep the sections in position, and the bottom rail of the frame has staples or tin clips bent to form a ledge for the same purpose. The sections are of only $1\frac{3}{4}$ inch broad, and require no rattle to admit bees from one to another; the one-eighth ledge on a frame answers this purpose. The above plan is not only better to secure a greater amount of honey, but is much easier manipulated and inspected than when placed in crates; but sections are not generally in favour, neither with bee-keepers nor honey merchants, so far as I have experienced. Upwards of a hundred bee-keepers that I spoke to on the subject last year, and who had tried them, were against them, but whether sections or supers are used the bees should be admitted to them from the outside combs only. If the crown of the hive is not fitted with sides of some sort thin adapting boards should be used, so that the centre of the hive over the brood be closed to prevent discoloration of combs, or queen ascending, or brood being chilled when cold weather comes. Supers should have ample coverings to prevent the escape of heat. When bees are filling supers they should never be disturbed, unless when actually necessary to do so, and when it is warm and the sun shining, for then bees are less inclined to sting than when it is cold. When one super is filled with comb another should be added above. This keeps the bees better employed at comb-building, and relieves the overcrowded first super.—A LANARKSHIRE BEE-KEEPER.

CYPRIONS, SYRIANS, AND FOUL BROOD.

"J. P. S." (pages 392-3) says, "Cyprians cannot be handled with smoke any better than Syrians." Quite so; neither must they even smell it or be jarred. If these precautions are taken and opened when the sun shines they will be found second only to Syrians in tameness, to which bees they are nearly allied. Those who condemn the Syrians and Cyprians for their savageness have used smoke to them or else they have not had the pure races. Mr. Doolittle in the *American Bee Journal*, quoted by a correspondent a short time ago, page 132, says, "As Mr. Carroll wrote me that I should have less difficulty in handling the Cyprians if I used no smoke, I placed the smoker well filled and lighted on the top of the next hive, and proceeded to carefully raise the quilt," and then, of course, he found them quite savage. I give this quotation to show that people should follow the directions given by those who know. Mr. Benton in Cyprus had 500 colonies placed round his house, on the verandah, or anywhere where they could stand. One hive in particular was so placed that it had to be passed within 2 feet from the entrance scores of times each day by every visitor or inmate; and though Mr. Benton was working amongst them from early morning to late at night with no protection whatever save a hat, shirt, pants, and slippers, no one was ever stung, and he very rarely. We have Mr. Blow's authority for saying that he saw Mr. Benton open his hive after hive without veil or gloves, and none ventured to sting.

My opinion is like "J. P. S." regarding foul brood—viz., that it will attack hives in a certain condition more readily than others, just as a dead sheep will breed maggots more readily than a live one, though they will not breed spontaneously in either; but I must disagree with him when he says they are liable to it when in a dysenteric condition. Neither do I believe these new races of bees are more liable to it than others. It is not everyone who can discern this disease, as I have myself seen an expert and one who has had the disease in his own apiary mistaken.

These eastern bees rear an immense amount of brood and pack it in a solid mass, and, what is more, they require a greater degree of heat than blacks to develop it, the critical time being the transition stage from the larva to the pupa state; therefore the slightest chill by opening them on a cold day will cause the brood to die, which looks like and is taken by most people for foul brood. A damp cold hive will also cause it; hence these bees must always be crowded together. On no account must brood be spread or divided with empty combs or frames. Hives should be dry, warm, double-walled, with dry porous quilts on the top; and they should never be opened except on a warm day when the sun

shines, and this should be done as early in the day as possible, so that the hive may regain its heat before the evening is cool.

If by any chance you get this so-called foul, or rather chilled brood, the best way to deal with it is to put it into a queenless colony for all the live bees to hatch out; then with a sharp knife shave off the caps, dust well with powdered charcoal and hang up to dry, when they may be again used with impunity. These bees in the wing state will stand greater cold and punishment than our native blacks owing to their greater vitality, but the brood will not. Probably this may be accounted for if we remember these bees come from a warmer climate.

Let me be distinctly understood that I am not a race-worshipper. Bees have no attractions for me if they will not yield any honey, no matter how beautiful or ornamental they may be. The "Lanarkshire Bee-keeper" is taking a step in the right direction by crossing Cyprian queens with Ligurian drones, and the produce with Carniolian drones. It is only by crossing these foreign bees that we may hope to produce superior varieties. It has been done in every other branch of the animal and vegetable kingdoms, and why not with bees? for with all their virtues—which should make us more anxious to improve them—they are only wild bees we are cultivating at present. Cyprus gave us the Cauliflower, and who would recognise the original in the immense varieties of Broccoli and Cauliflower, or would banish it from our gardens? and may not one or all of these bees produce a breed of bees as distinct and valuable to the present as the Magnum Bonum Potato is to its first parents? Let us go about this matter in an intelligent manner, each adding his mite; and for the present those who want a good crop of honey and plenty of bees in the spring to fertilise their abundant fruit blossom, I would advise such to try the first cross of Syrians with pure black drones.—HALLAMSHIRE.

TRADE CATALOGUES RECEIVED.

Paul & Son, Cheshunt.—*Catalogue of Hardy Herbaceous Plants.*
Ant. Roozen & Son, Overveen, Haarlem, Holland.—*Catalogue of Dutch and Cape Bulbs.*
W. Lovell & Son, Driffield, Yorkshire.—*Select List of Strawberry Plants.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Brighton Show (Exhibitor).—Letters such as you have sent should be accompanied by the name and address of the writers, and if you will forward yours, not for publication against your desire, the advisability of inserting your communication shall be considered.

Child's Hill, Hampstead, Horticultural Society (J. B.).—The Secretary last year was, we believe, Mr. Williams, The Gardens, Frognaal Rise, Hampstead, and we have not heard of any change in the Society's officials.

National Rose Catalogue (Young Gardener).—If you write to the Rev. H. H. D'Ombra, Westwell Vicarage, Ashford, Kent, enclosing a stamped directed envelope for reply, you will obtain the information you need. You are in error on the other subject. No pamphlet is published by the gardener you name, and consequently has not been referred to in the Journal.

Pteris serrulata cristata major (W. M., Liverpool).—We received from you about ten days ago what appears to be a frond of this fine Fern, but the announced "particulars by post" have not yet reached our hands.

Market Gardening (Student).—We suspect you will find it difficult to get into such a garden as you have in view unless you have someone who is acquainted with the proprietor willing to recommend you to him. Numbers of students would be glad to have a term in some of the establishments in question, pay a premium for the privilege of entrance, and receive no wages for a year. The alternative plan is to get in as a labourer, and with such a position you would possibly be disappointed.

Insects Found in a Church (H. M.).—The specimen sent is a species of beetle, *Anobium striatum*, one of those that live in wood, and which has doubtless a colony in the woodwork of some of the old pews. To this, and to others of the same family, the ominous name of "death watch" has been given, because our superstitious ancestors believed the noise they made when heard in a house was a sign of the approaching death of an inmate. This beetle first appears as a six-legged larva or grub, which also resides in the

wood on which it feeds, and, like the beetle, it is believed to produce a sound by striking its head against the sides of the burrow it has cut, with the object perhaps, of ascertaining how near it is to the outer air. Made by the mature beetle the sound is supposed to be a call from one to the other, but this must be deemed doubtful, their history being insufficiently known as yet.

Myosotis dissitiflora (L. Thompson).—You may remove the plants when you like after they cease to be attractive, and plant them in a cool moist position on the north side of a wall. They may be laid in closely together and rather deeply, and if kept constantly moist they will in a short time commence growing, and roots will be emitted from the stems. In showery weather in August the plants may be divided, and the rooted portions inserted 9 inches apart in rich soil, watered as needed to keep them growing, and fine plants will be had for flowering next spring.

Taking up Crocuses (Boelfre).—The Crocus bulbs, of which you sent specimens with "grass," are taken up too soon, as the bulbs are not nearly full-sized, and have no skin, the grass being very green and fleshy. It is not necessary to let the grass die down before lifting the bulbs, but when it begins to turn yellow the bulbs may then safely be lifted. We usually lift ours in beds at the close of May so as to make way for bedding plants, but we find such are not nearly so good in flowering the following spring as those that are allowed to mature their growth before lifting, and those that are not disturbed at all are very much the best.

Pelargonium Leaves Turning Yellow (Oldham).—It is evident there is something in the atmosphere of your houses that is not suitable for plant growth, and may arise from the vapour pouring out of the "hundreds of mill chimneys" in your locality. We, however, passed many years in a smoky locality, but the atmosphere did not produce such a state of things as your specimens indicate. They are simply dried up, a result, we think, of too dry an atmosphere, which may have been accelerated by the fumes from the mill chimneys, especially as the wind was strong, and would no doubt enter the house by the ventilators. In such weather we found it best to keep the floors frequently damped, and admit no more air than was absolutely necessary to prevent the temperature becoming dangerously high, and breaking the force of the in-draught by some wool netting over the ventilators. The netting with quarter-inch mesh answered perfectly, and it was kept on constantly so as to sift the air as it passed in, as it did by the wool becoming coated with sooty matter.

Cucumbers Gummy (T. J., Chester).—In all probability you have been treating the plants too generously with liquid manure, and the foliage has been unable to assimilate the abundant supply of sap. If this is not the cause of the exudation we fear your plants are attacked by the disease. Remove the worst fruits and keep the atmosphere drier, also increase the temperature; cease also the supplies of liquid manure, only giving sufficient water to keep the plants steadily growing, and note the effects of the change of treatment. *Dahlia Juarezii* is not a single variety, but double, though the florets are not cupped and incurved like the show varieties; the colour is brilliant scarlet. The colour of the other variety you name is orange yellow.

Cucumbers Flagging (B. B.).—We have little doubt as to the cause of the leaves flagging and the young fruits failing to swell. If you examine the soil at the bottom of the bed quite down to the slates over the hot-water pipes you will find the soil dry, and it will not be made moist by one or two ordinary waterings. Water must be poured in the bed copiously and repeatedly as fast as it drains away until every particle of soil is made thoroughly moist. As soon as you effect this—and it may take two or three days—you will find your plants able to withstand the sun, and the young fruits will swell freely. The surface roots to which you refer will increase under the treatment we advise, and should be covered periodically with rough rich soil; but such roots, however apparently healthy they may be, do not avail for affording Cucumbers adequate support when the soil below is dry. For a week or so slight shade may be needed, but with an abundance of active roots and abundance of water, with a judicious system of ventilation, we rarely indeed find it necessary to shade Cucumbers, however bright the weather may be.

Canterbury Bells not Flowering (Disappointed).—Your plants are not producing flower spikes because the seed was not sown soon enough by at least two months. September is quite too late for sowing for insuring good flowering spikes the following year. Seed should be sown at once in well-watered drills and lightly covered with fine soil, shading the ground with a mat for a week afterwards if the weather proves dry and the days bright. It is, perhaps, better to sow thinly in boxes of prepared soil, covered with squares of glass and well shaded for keeping the soil constantly moist. These boxes may either be stood in the open air or in a cold frame, and the seedlings when large enough transplanted in the open garden. Your plants that are too late for flowering this year will probably afford noble spikes next season. The "authority," whose advice you followed in sowing in September has evidently something to learn in raising plants of these effective and easily grown border flowers.

Vine Leaf Eaten (H. S.).—The leaf sent appears as if it had been eaten by the Vine weevil—a brown beetle-like insect that is often very destructive in vineries. These weevils feed mostly at night, and may be found by carefully searching for them with the aid of a lantern, caught, and destroyed. There is no easy method of extirpating them, but we have been told that syringing the Vines with a solution of nicotine soap at the strength of 2 ozs. to a gallon of water renders the foliage distasteful to the insects. The Fig leaf was so dried that it crumbled to pieces when removed from the box. If the tree is outdoors the young leaves may have been injured by frost, as many have in the south during the past fortnight. If it is under glass the shrivelling is probably the result of drought at the roots, or insufficient air early in the morning. The *Narcissus* is a small and highly perfumed double variety of poeticus. A larger variety is very beautiful now, and sold largely in Covent Garden and other flower markets.

Grapes Rusted (J. O., Monmouth).—You cannot do anything now to free the berries of the "rust," which has probably arisen, in part at least, from the sulphur which has been employed in destroying the mildew, and it sometimes results from syringing, which in your case ought not to be practised, as it will only aggravate the evil, and will have a tendency to cause the

berries to crack. Cease syringing the Vines, but maintain a genial moisture in the house by damping the floors and borders in the morning and again at closing time. Admit air early, and close early in the afternoon with sun heat, increasing to 85° or 90°. Avoid sharp currents through the house of cold air by moderating the ventilation in cold bright weather, as it is the sudden cooling of the skins of the berries that causes them to rust. You will do well to leave the top lights open to the extent of an inch or two all night.

Carpet Bed Design (Stafford).—Certainly you have "as much right to have suggestions for planting a square bed as another correspondent had to a round one," and we submit most readily any designs we have prepared; but we cannot undertake to sketch a method of planting for every correspondent who may desire it. The annexed design may possibly be suggestive.

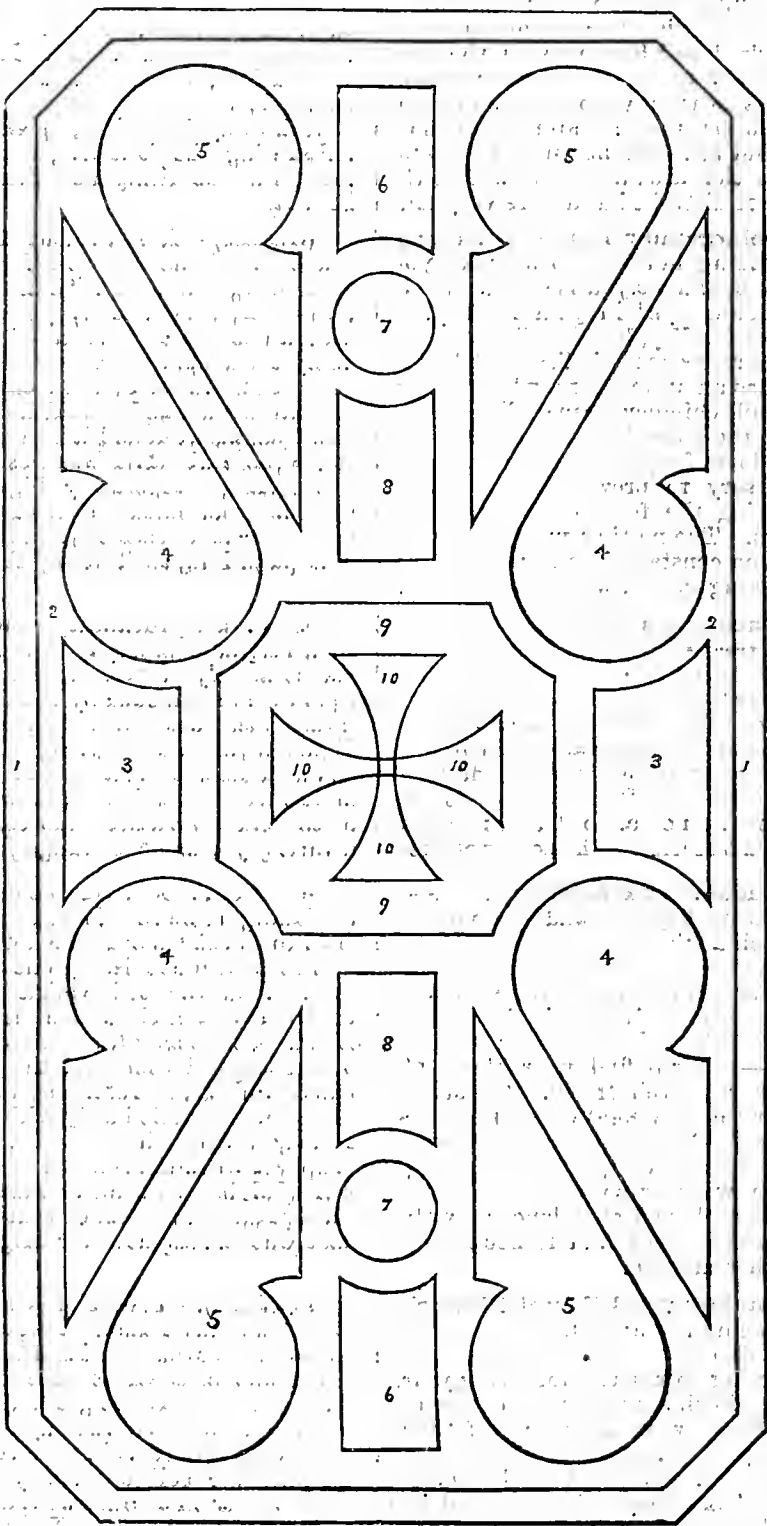


Fig. 106.

It was very effective at Hampton Court planted as follows:—1, *Echeveria secunda glauca*; 2, *Mesembryanthemum cordifolium variegatum*; 3, *Antennaria tomentosa*; 4, *Alternanthera magnifica* or *A. paronychioides major*; 5, *Alternanthera paronychioides*; 6, *Herniaria saxatilis*; 7, *Alternanthera amœna*; 8, *Pachyphytum bracteosum*; 9, *Sempervivum montanum*, slightly raised and planted thickly; 10, *Alternanthera amœna*. The border lines (No. 1) are intended to be raised 4 or 5 inches, and planted with two rows of *Echeverias* and a little *Sedum glaucum* interspersed. This bed can be planted without *Echeverias* and look well, but it will have a better appearance by marking out all the small beds in the design with these useful plants. A variety of plants are suitable for No. 2, but few excel for a low yet cheerful groundwork *Mesembryanthemum cordifolium variegatum*.

Red Spider on Melons (J. T. S.).—The Melon leaf that was doubled up and enclosed in a letter arrived in such a dried and crushed state that it was of no use whatever for the purpose for which it was sent. The greenness of the leaves described is not indicative of the presence of red spider, nor ought this insect to be allowed to get established in a house where the under sides of the leaves can be syringed. Still, as those from the bed to the wires cannot well be syringed, it might be well to sponge them carefully with a mixture of sulphur and water if there are signs of the presence of the pest. With sufficient moisture in the soil and atmosphere, and care in ventilation, there ought to be no difficulty in keeping the plants healthy and

clean. The bed is quite large enough, though an inch of soil might be added with advantage and pressed down pretty firmly as roots protrude through the surface. Your treatment appears to be right, but we should prefer the night temperature 5° higher, at least the Melons would prefer it; and the top lights left open to the extent of an inch or so all night, and we should not give front air until ventilation by the top lights proved insufficient from preventing the temperature increasing above 80° to 85°. You cannot close too early in the afternoon with moisture, provided the temperature does not exceed 90° afterwards. A close atmosphere at night, especially if damp, with a temperature of 60° might induce an attack of mildew, and a more buoyant atmosphere, with a little more fire heat, would encourage the growth of the plants and facilitate the setting and swelling of the fruit.

Creosote for Hop Poles (S., Sussex).—We do not know of anything better than good creosote for dipping them in, for all is not of equal merit. Some time ago Mr. Charles Whitehead directed the attention of Hop planters in the *South Eastern Gazette* to the adulteration of creosote, of which he said samples had been analysed by Dr. Voelcker and found to be not at all suitable for the purpose of preserving wood, as they consisted largely of the heavier tar oils. Upon being subject to distillation they yielded only about 61 per cent. of volatile oils, of which only 4 per cent. were carbolic acid; while good creosote should yield quite 75 per cent. of volatile oils, containing 10 to 15 per cent. of carbolic acid. The specific gravity of the samples was 1.103, while the specific gravity of good creosote should not exceed 1.06. A few persons have had doubts for some time past as to the quality of the creosote they have received, and have thought that it has not thoroughly and properly preserved the structure of Hop poles and timber from the effects of dry rot and the influences of the weather. At least one leading agriculturist in Kent declares that he has sustained heavy losses from the impurity of creosote and its inefficient operation. All who use creosote know in what a thick and generally unsatisfactory state much of it is delivered, and how short it is frequently in quantity, but the majority of Hop planters have not suspected that it has also been wanting in respect to quality; therefore it is desirable that attention should be specially directed to this very important point, in order that buyers of creosote may protect themselves by requiring a guarantee that it is up to the proper standard of purity and efficiency.

Cytisus Adami (A. Smith, Bedale).—The above is the name of the Laburnum of which you have sent specimens. It was originally produced upwards of sixty years ago in budding *Cytisus purpureus* on the common Laburnum. In this process it is supposed that a cell of the one species became divided and united to a cell of the other, and the result has been a plant producing not only flowers of each species separately, but others partaking of the characters of both. There are other instances in the vegetable kingdom in which a similar union of cells is believed to have taken place, but *Cytisus Adami* is the best known and best established. The changes produced on the Laburnum when grafted are sometimes wonderful and wholly unaccountable. We have rarely seen the common or Scotch Laburnum sport into other varieties. We recollect only one instance in which flowers of purpurascens appeared. But if you graft either of the Laburnums with *Cytisus purpureus* or *Cytisus supinus*, the vagaries which sometimes take place are astonishing. We know of a small standard of *Cytisus alpinus* which was grafted with *Cytisus purpureus*, and on the same branch will sometimes be found small pieces of yellow and purple, and at the very point strong shoots of the *Cytisus alpinus*; the "blood" of the stock finding its way through the more weakly growth of the scion. What is remarkable is, that grafting or budding with one variety will frequently, as the plant grows, produce three or four varieties. As an example of the remarkable sportiveness of the *Cytisus Adami*, a Dutch correspondent sent us the following note a few years ago:—"Before me is a spike bearing fifteen flowers. Examining them from the base, they are arranged in the following order:—One yellow flower, two violet, one yellow, one violet, two yellow, one violet, one yellow, one violet, five yellow—a total of five violet and ten yellow flowers, and the effect is very striking."

Peaches not Stoning (Gardener).—The chief cause of the fruit not stoning is the badly ripened state of the wood the previous season, and this you must remedy before there is any probability of their stoning satisfactorily. In the current year you must keep the shoots so thin that the foliage will have full exposure to light and air, as crowding induces weakly growth and long-jointed wood, whereas it should be stout and short-jointed, with sufficient space for it to be solidified as made and to insure its ripening. As you have so much fruit falling we should thin out the growths now where they are too thick. They should be 12 inches apart to insure a proper exposure to light and air. Stop any gross growths, so as to equalise the sap and induce an equal vigour through every part of the trees. In autumn, or so soon as the leaves give indications of falling, lift the trees and lay in the roots nearer the surface in fresh compost. This is the best remedy for immaturity of wood, as it checks the tendency to over-luxuriance, which is fatal to the trees fruiting. There is nothing we can see likely to cause the fruit to fall in the treatment of this year; only if the roots are inside, instead of watering once a month, water ought to be given not less frequently than once a week when the trees are stoning and swelling off their crops. With the borders properly drained there is no fear of overwatering Peaches and Nectarines during their growth. The scale can only be destroyed by the applying of an insecticide, than which none is more efficacious than petroleum; a wineglassful to three gallons of water, kept stirred sharply whilst it is being syringed on the trees, so as to keep the oil thoroughly mixed, otherwise it will rise to the surface and be very indifferently applied. Repeat if necessary in the course of a few days, and always in the evening.

Names of Plants (Youth).—3, *Ornithogalum nutans*; 4, *Ranunculus aconitifolius flore pleno*; 6, *Epimedium alpinum*. The other specimens were quite withered. (*H. C. M.*)—1, *Luzula campestris*; 2, Not recognisable; 3, *Carex glauca*; 4, *Carex remota*. (*S. H.*)—*Onoclea sensibilis*. (*W. W.*)—*Pellaea hastata*. (*J. W.*)—The purple flower is *Muscari monstrosum*; the Lily is *Lilium pomponium*; the Iris was much withered, but resembles *I. tuberosa*, the Snake's-head Iris. (*J. V.*)—1, *Ceanothus dentatus*; 2, *Lithospermum prostratum*; 3, *Cistus purpureus*; 4, *Trollius europæus*; 5 and 6, *Lychnis viscaria* and its variety *alba*.

COVENT GARDEN MARKET.—JUNE 4TH.

BUSINESS again dull with the holiday.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	1 6 to 5 0		Oranges	6 0 to 10 0	
Chestnuts	0 0		Peaches	6 0	12 0
Figs	4 0	6 0	Pears, kitchen ..	1 0	1 6
Filberts	0 0	0 0	" dessert ..	1 0	5 0
Cobs	1 3	1 6	Pine Apples English ..	2 0	3 0
Grapes	2 0	5 0	Strawberries	2 0	6 0
Lemon	15 0	21 0	St. Michael Pines ..	2 0	6 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes	2 0 to 4 0		Mushrooms	0 9 to 1 6	
Beans, Kidney	1 0	0 0	Mustard and Cress ..	0 2	0 0
Beet, Red	1 0	2 0	Onions	2 6	3 0
Broccoli	0 9	1 0	Parsley	2 0	3 0
Brussels Sprouts ..	0 0	0 0	Parsnips	1 0	2 0
Cabbage	0 6	1 0	Potatoes	4 0	5 0
Capicums	1 6	2 0	" Kidney	4 0	5 0
Jarrots	0 3	0 4	" New	0 2	0 4
Cauliflowers	2 0	3 0	Rhubarb	0 4	0 0
Celery	1 6	2 0	Salsafy	1 0	0 6
Coleworts	2 0	4 0	Scorzonera	1 6	0 6
Cucumbers	0 3	0 6	Shallots	0 3	0 6
Endive	1 0	2 0	Spinach	2 6	3 6
Herbs	0 2	0 0	Tomatoes	1 0	0 0
Leeks	0 3	0 4	Turnips	0 3	0 0
Lettuce	1 0	1 6	" New	1 0	0 0



ARABLE AND PASTURE FARMING.

(Continued from page 436.)

It is a natural question to ask, Can the question of comparison as between arable and grass land farming be answered in a way that shall be easily understood by the use of figures? We reply, No; it is impossible. All the attempts which have been made in this direction have proved failures so far as illustrations of profit and loss are considered. If we were to attempt to estimate what quantity of beef and mutton can be made from an acre of arable, or how much from an acre of grass, and also at what cost, it would not forward the matter at all in the eyes of a practical farmer, nor would any estimate (for it could be nothing more) solve the difficult problem, in consequence of surrounding circumstances, which we have never seen precisely analogous on two different farms, although they may be adjoining, and situated in the same district as to climate and soil. The disturbing elements in such a case are so numerous that it is difficult to enumerate, much less to estimate them; but when we come to compare lands occupied either as arable or pasture with the varying temperature of the soils, the rainfall, the geological formation, and the surrounding influences too numerous to mention when situated in different districts, it is totally impossible to solve the problem.

We must therefore for our comparison take farms to illustrate our subject situated on the same estate and in the hands of an agent or home farmer for management. This will simplify the matter very much in consequence of there being no lease with disturbing conditions quite unsuited to the soil and situation, which often ties the hands of the renting farmer, preventing him from making any alteration in the system of cultivation of the arable or the management of a pasture farm. We may probably be able to introduce a variety of methods which different men have found most profitable, and at the same time to allude to certain systems well known, and also to introduce those admitted variations in farming practice which are not only interesting on account of their novelty, but at the same time sufficiently economical to entitle them to a position as profitable farming.

One man recommends as an improvement a new departure in the increased acreage of his cereal products, whereas another falls back upon old-established customs, which may frequently be called old prejudices, by keeping stock of certain kinds, whether of horned stock or sheep, not only ill adapted for the land under his occupation, without ever making any calculation as to the profit or loss on the transaction or system with which it is connected. By so doing he positively destroys all his prospect of profit by diminishing the growth of his cereal and

pulse crops, which being the rent-paying crops, by continuing to maintain and often to increase his live stock, upon which money is frequently lost, without adopting experiments on a small scale in order to find out how those recommended may be suitable and economical as applied to his own occupation. We do not ask any man to blindly accept all that is offered to his notice in farming practices without trying them in his own way on his own occupation.

Before entering upon the comparison of farms of the like character, but managed under different systems, as of grass or arable land, we will quote from Mr. Bowen Jones's summary, to which we have previously referred. He writes:—"My conclusions are that it is desirable for English farmers to turn their attention more to the production of meat. That to do this successfully they must be insured protection from the inroads of foreign diseases which are fatal to this branch of industry. That meat cannot be brought into the market without fostering the breeding of all descriptions of stock in this country. That the condition of soil and climate in some parts of the kingdom will not admit of the whole of the animals bred on the land being there fed. That breeding and feeding on the general run of farms throughout the country should be extended. That on light lands more meat can be raised under an arable than under a grass system of culture; and an extension of sheep-breeding and feeding on such soils will not only increase the yield of meat but the profits of the cultivator. That on strong clays on the average of years less meat can be raised under a system wholly arable than one wholly grass if high feeding is resorted to. That on good medium soils a mixed system of part arable and part grass is the best to raise the largest quantity of meat through breeding and feeding on the same holding. That as you approach the lighter soils the quantity of arable in proportion to grass may be extended for the same purpose and with the same result, and, on the contrary, as you draw nearer the clay from medium soils the amount of grass may be judiciously increased." This is certainly a very fair statement of the results of grazing and corn-growing, and on the assertion that meat being higher in price more stock should be raised. It is, however, only asking that the old system of stocking in connection with cropping upon the old and well-known rotations may be maintained, and, if possible, extended.

Our opinion is that the old system of stocking and cropping having broken down, except that of dairy farming and grazing fat cattle, there must be a new arrangement of both on the mixed soil farms before it can succeed. If we look to any of the best written essays in the Journal of Royal Agricultural Society of England, we find all the best practices set forth in the most practical manner by the most intelligent and experienced farmers, and notwithstanding the failures of a vast number of men who understood both stocking and cropping upon the old lines, it has been recommended to continue it. We shall therefore commence our illustrations of the stocking and management of some of the best grazing farms in England, and endeavour to show what improvement can be made in their stocking and management. Let us take, as illustrative of our object, some of the best grazing farms in the vale of Aylesbury, also in the Wincanton vale of Somersetshire and in parts of Leicestershire, as well as some other counties, on which it is no uncommon practice to feed fat a bullock and a ewe and her lamb also per acre. Upon such land we find it is stated by Sir J. B. Lawes, in an article upon pasture land published in the *Agricultural Gazette* on August 9th, 1880, as follows:—"There is a common saying in Leicestershire, 'The more white Clover the more beef,' and it is evident that in the pasture which I have had under examination where this Clover occupies a very prominent position. It is probable that an increase of live weight equal to 500 lbs. is produced upon each acre of this land in the six-months grazing; but it is hardly possible to form any accurate measure of the amount of grass which is consumed in the production of this result. In our various experiments upon fattening oxen we estimated that about 12 to 13 lbs. of dry food was consumed to produce 1 lb. of increase. Now, without going into the question of how far the grass on an acre of the Leicestershire pasture would be equivalent to the food I have named, its consumption at all events brings about the same result so far as the production of 500 lbs. increase of live weight in a fattening animal is concerned, and we thus get, in the comparison, some idea of the wonderful qualities of such a pasture as that which I have had under examination." This at once shows, in connection with other farms of pasture land which we could mention, the great value of such land, but it by no means shows how many of the best farms may be better conducted. For instance, sheep are kept on the land simultaneously with bullocks, and these we know feed closer than cattle, and eat out the buds and stems of

the white Clover to the injury of the pasture; at the same time the long-woolled sheep are a necessity to feed in company with fattening oxen, for they are of a quiet habit, and will eat and lie down, whereas most of the Down breeds and crosses would continue to roam over the pasture, making the produce distasteful to the bullocks. Again, it is notorious that in much of the best pasture land the inferior grasses have greatly increased, which arises from the fact of its going to seed, it having been refused by the stock; and therefore, unless the scythe or mowing machine is run over the pasture just after these grasses have come into bloom, the seed will drop and vegetate to the injury of the future pasture. Also in all those cases when cake or corn, or indeed in any case, the late Mr. T. C. Carrington always carried out the plan (and he was a great authority on the subject), of spreading the droppings of the cattle twice a week, or otherwise collect the droppings and take them to an earth or compost heap ready to receive them; in this way the full advantage would be obtained by the pasture when spread, because allowing it to remain as usual would make the grass distasteful to cattle if allowed to remain without either spreading, or heaping and laying out again.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour is still connected with preparing the land for seeding and drilling for the Swedish Turnips, and also common Turnips where they may be required for early feeding on strong land preparatory for Wheat, or where they are required for ploughing-in when full of foliage and before bulbing, in which case another crop may be grown and ploughed-in the same way. The seeding for the main crop of Swedes should now be completed, for in all except the northern counties and Scotland, the best time for sowing is between the 8th and 14th of June. The first growth of Mustard will now be ready for ploughing in. This should be done at a depth of about 4 inches, and worked down fine, and the land sown daily as fast as ploughed, in order to insure moisture sufficient for vegetating the seed; otherwise, if the dry weather continues it may lie about in the land, and the weeds become master of the situation. On some strong land, especially where dairy cows are kept, crops for ensilage may be seeded for. After Rye has been taken as a fodder crop, a crop of Maize may be grown, which will come off in good time for use to be placed in silo. If 3 or 3½ bushels of Maize be drilled at 14 inches apart or sown broadcast per acre, with 1½ cwt. of nitrate of soda, it will come very thick and strong, and forward enough to make good ensilage, or for ploughing-in as green manure. As fast as the Trifolium crop is removed for cattle or sheep and horses, the land may be ploughed and sown daily, or as fast as room for ploughing can be obtained, with Greystone Turnip. If required for sheep-feeding they may be allowed to bulb; otherwise when full of foliage before bulbing they may be ploughed-in as green manure for Wheat. In any and every case where Swedes or Turnip seeds are sown or drilled not less than 3 cwt. of bone superphosphate per acre should be applied by the drill. If the weather continues dry at the seed time 1½ cwt. of nitrate of soda may be sown broadcast behind the drill and harrowed in; this will retain more moisture in the land, besides quickening the growth of the young plants out of reach of the Turnip flea or beetle.

Hand Labour.—The cutting of Clovers should not be longer delayed on any soil, for the quality of the hay will be the better for early cutting, as also the second growth, either for feeding or for hay and seeding. Hoeing of Mangolds and all early root crops both by horse and hand should be done early, to kill the weeds in their infancy. Sheep-washing and shearing will now be pretty general, especially on the hill farms where breeding flocks are kept, and the shepherd should always be the party employed to cast the sheep into the water and keep his eye well upon every animal to insure their being taken out in turn, for some good animals are frequently lost or injured by staying in the water too long, especially in those cases of neglect when water is taken internally, for then it is often fatal. Prepare now for making rick staddles for hay, and, unless on some small farms, this is best done to save labour in the fields where the crop is grown. Spars and yarn for thatching should be also provided beforehand. Planting Cabbages and Kohl Rabi will be going on now. In a dry time it is no use planting with the setting stick. We always plant with the spade in any weather; the men introduce a light or worn spade at an angle of 45°, women following to introduce the plants at the back of the spade. In this way, especially if the plants are large, they can be buried deeply in the earth, and are sustained in the driest of weather, whereas if planted with a setting stick the dusty fine earth would run into the orifice with the roots of the plant and cause them to die. Under any circumstances, when very dry and hot weather prevails, the hearts of the plants should be placed just under the surface. Ploughing-in the plants is frequently done, but it cannot be well done in dry weather.

Live Stock.—Calves may in most cases be reared with profit, even without milk, after a few days, with a prospect of advantage in those cases where the stock is short, and where either dairy stock or animals for making baby beef are required. As this is the time for the selection of mares for breeding either cart horses or heavy draught animals, the selection of good mares and using only the best entire horses is of the

highest importance. There is a better guide in selection, by taking the best form on either side, together with their weight as well as age. We find that in America the value of draught horses is judged by their weight, as it is stated that weight gives not only power in work, but is one of the surest indications of constitution; light, flat-sided horses are generally of the worst constitution and are unequal to severe work, and are more frequently short-lived in consequence. With regard to the fattening of steers in boxes in the summer time, the cutting-up and feeding with Clovers, and an allowance of 3 lbs. cake and 1 lb. of bean or maize meal per day, excellent beef can be made, as we have proved for many years, also the feeding dairy cows in the same way for milk in their stalls will furnish a good record, and leave most valuable manure.

THE BRITISH GOAT SOCIETY.—The fifth annual meeting of this Society was held on Friday last at the rooms of the British Dairy Farmers' Association; Mr. W. K. Taunton presiding. Mr. H. S. Holmes-Pegler, Hon. Secretary, read the report, which showed the continued progress of the Society, the number of members being now 225. The funds were likewise in a flourishing condition, the balance-sheet showing the sum of £53 0s. 10d. in hand. The kid register, which was opened on the 1st January for the registration of the birth of goats, was working satisfactorily, and in order to afford a stimulus to registration it had been decided to offer an additional prize, to be given to the breeder of certain first-prize exhibits at the next Dairy Show, conditionally upon the birth having been duly registered. One object of the Society has not met with that success which was anticipated and which the Committee thought it deserved—namely, the introduction of goats amongst the cottage population, very few applications having been received from cottagers for goats to be paid for by instalments. The report was adopted, and some other formal business was transacted. The Duke of Wellington was re-elected President, and it was resolved to ask Mr. James Howard, M.P., to become a Vice-President.

SEED STANDS AT MAIDSTONE.—At the great and successful Show of the Bath and West of England Society, the large seed stands which are the first things to meet the eye of the visitor are, as usual, handsome and well-arranged botanical museums. That of Messrs. Sutton & Sons of Reading is first in order of the catalogue as it is in the show ground, with a handsome black and gold front, and embellished with trophies of victories in all parts of the world. The structure is of a very striking character. Specimens of 300 kinds of Grasses and of a thousand different kinds of seeds would occupy the student for the whole time of the Show if he intended to instruct himself in the subject. Roots and forage plants, models of plants and vegetables, and nearly a hundred samples of Potatoes go to make up the rest of the stand. Messrs. Webb & Sons of Stourbridge come next; and this firm, too, have an enormous museum of Grasses and Clovers, seeds, plants, roots, and vegetables. And not only this, for they also show the manure to help on growth from healthy seed. Messrs. James Carter & Co. of High Holborn have a really handsome and instructive museum. Grasses here are classified into desirable and undesirable sorts, and the geological formation suited for the various kinds pointed out. Seeds and the main features of the other stands are also shown.—(Morning Post.)

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.					Rain
1884.	May.	Baromet- er at 32 ⁵ and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperatnre.			
			Dry.	Wet.			Max.	Min.	In sun.	On grass.		
		Inches.	deg.	deg.		deg.	deg.	deg.	deg.	deg.	Ir.	
Sunday	25	30.114	57.1	52.1	E.	59.0	59.5	47.4	68.0	46.2	0.010	
Monday	26	30.232	61.0	54.8	N.E.	57.2	69.3	46.8	111.4	45.1	—	
Tuesday	27	30.303	59.2	53.1	N.E.	57.6	71.3	42.0	110.3	35.6	—	
Wednesday ..	28	30.260	51.2	46.7	N.E.	58.0	55.7	42.2	72.9	34.7	—	
Thursday	29	30.216	50.4	46.3	E.	56.4	56.6	46.2	71.6	45.4	—	
Friday	30	30.067	57.3	51.7	N.	55.2	70.6	41.8	115.4	34.0	—	
Saturday	31	30.072	55.2	49.8	N.E.	56.0	64.1	41.4	78.6	36.2	—	
		30.181	55.9	50.6		57.1	63.9	44.9	89.7	39.6	0.010	

REMARKS.

25th.—Dull, with slight shower about noon.
26th.—Fine cloudless evening.
27th.—Fine.
28th.—Cold and cloudy.
29th.—Cold and cloudy; clearer in evening.
30th.—Fine and warmer.
31st.—Dull morning.
A very dry week, with cold easterly winds and a good deal of cloud; mean pressure high; mean temperature about 3° below the average, and more than 4° below that of the preceding week. The rainfall of the month of May was little more than one-third of the average.—G. J. SYMONS.



COMING EVENTS

12	TH	Royal Society at 4.30 P.M.
13	F	
14	S	
15	SUN	1ST SUNDAY AFTER TRINITY.
16	M	
17	TU	
18	W	Royal Botanic Society's Show. York Floral Fête (three days).

WATERING, MULCHING, AND TOP-DRESSING.

CONCERNING the necessity of these operations both under glass and in the open it is needless to speak; but I question if all fully realise their importance in relation to each other, or, in other words, whether watering is not too often solely relied upon. In numerous cases, if there is a necessity for watering there is also a necessity for mulching, and in some instances if the latter were attended to in good time watering might be dispensed with. What is generally termed mulching is giving a liberal surface-dressing of rough manure, litter, or grass, and is intended to prevent too rapid loss of moisture by evaporation from the soil. Top-dressings, as distinguished from mulchings, take the form of decomposed manure, leaf soil, lime rubbish, burnt refuse, or a mixture of these or other fertilising substances with good loamy soil. This, besides to a certain extent acting as a mulching, also serves to attract the roots near the surface.

In all cases, however, some judgment must be exercised with regard to the subsequent waterings, more especially under glass, or, instead of mulchings and top-dressings being of great service, they may become a source of much injury. Much depends upon the nature of the borders and the material used in mulching. One of the greatest mistakes I ever made was to top-dress our Peach borders with fresh straw manure from the cowyard. This border is of a heavy cold nature, and so also is cowyard manure, besides being a very bad heat-conductor. As a consequence, our borders never became thoroughly warmed during the dull summer experienced, and mildew and "yellows" were in the ascendant. Then, again, this kind of manure whenever at all exposed (and if the borders are not exposed there is little necessity for mulching) is very apt to become badly caked over, and in this state greatly interferes with free watering, besides becoming useless as a manure. If the border is rich enough, the roots being near the surface and plenty of liquid manure available, I consider straw litter from the horse stables the best mulching for fruit borders under glass, and this we now rely upon for the Peach borders. For all exposed and partially exhausted borders, both inside and outside, I should recommend that they be given a liberal dressing of short or half-decayed manure, this being covered with a little fresh strawy litter, without which the manure is almost certain to become hard and dry; and in that state, although preventing rapid evaporation, it is not attractive to the roots. If we preserve plenty of roots near the surface fruit-growing is comparatively easy, but the case is very different if either by excessive coldness or dryness a deep-rooting tendency is induced. For my part I am arriving at the conclusion that we attach too much importance to deep culture for vegetables as well as fruit, and I firmly believe nearly everything would thrive better if the manure were well mixed with the surface soil.

Probably the best material for attracting roots to the

surface is leaf soil, and this, if not spoilt, evidently contains more plant food than many of us were at one time aware. This with turfy loam forms an excellent top-dressing for Cucumbers and Melons, being far preferable to manure, which I have repeatedly found breeds insects injurious to the roots, as well as gradually bringing the whole heap to an objectionable close state. All free-rooting plants delight in a loose open soil; in fact, Mr. Challis at Wilton is able to grow better early Grapes on Vines rooting in a border composed exclusively of broken bricks, charcoal, mortar rubbish, and bones than many are able to do in the orthodox close and rich borders. It must be remembered, however, that the more open the border the greater need for frequent liberal supplies of water; also if we top-dress any kind of border, mounds of soil, box or pot plants, we must bear in mind that this will not greatly affect or check the absorption of the moisture by the roots from the soil underneath, and thus we must not mulch dry soil, or the consequence may be distressing. Before a top-dressing is applied care should be taken to loosen the surface of the soil and give a good watering, as if it is placed on a dry hard surface it will not amalgamate, being therefore worse than thrown away. I have seen plants of Tomatoes, Melons, and Cucumbers, and borders for other fruit trees and Vines that have been top-dressed, in some cases filling the new soil with roots, and yet the plants or trees have done badly. This was simply owing to those in charge judging of the plants' requirements by the state of the surface soil, whereas this ought scarcely to be heeded, the amount of water given daily or otherwise being always in such cases in accordance with what was done prior to the top-dressing. If once a small body of soil which is fully occupied with roots is allowed to become thoroughly dry it is a difficult matter to moisten it again, except by dipping; and that is the secret of the failures alluded to, as a moist top-dressing may easily, and often does, cover dry soil. By all means top-dress, but look well to the subsequent watering.

Large inside Vine or other fruit borders, and which we are constantly and rightly informed require frequent heavy waterings, I would mulch only where much exposed to sun or fire heat, preferring rather to occasionally lightly top-dress with decayed manure or leaf soil to which is added some artificial manure, soot, or guano; or, better still, dried night soil as prepared and used so effectively by Mr. Taylor when at Longleat, this admitting of the surface being lightly loosened with a fork and then thoroughly soaked. Rough heavy mulchings interfere with the waterings, and we may easily be deceived as to the amount or thoroughness of the applications.

In the open ground mulchings are of the greatest value, especially for newly planted fruit trees and those growing in raised hot borders. In the case of young trees, which perhaps require no manure, straw litter is sufficient, though we may easily err on the wrong side with them; but well-established Peach, Nectarine, Apricot, Plums, Pears, Cherries, Raspberries, Gooseberries, Currants, and Strawberries will generally be benefited by a mulching of short manure surfaced with straw litter, applied directly after the next soaking rain or heavy watering. Strawberries and Raspberries especially require this treatment, as they ought never to be dug amongst, and must therefore be manured from the surface; the straw, being soon washed by the rains, also serving to keep the Strawberries clean. In town and suburban gardens where the "Companies'" water is laid on, those owning them sometimes over-estimate the value of the supply, and are, I think, rather too lavish with the hose. An almost daily deluge of cold hard water greatly impoverishes the soil and maintains it at much too low a temperature. Better by far run the water into an open cistern to become softened and warmed, and then apply it with the watering can, not forgetting also to mulch freely, and thereby do away with the necessity of so many waterings. If fruit trees, rows of Raspberries, Strawberries, Peas, Beans, and other vegetable

crops, are watered at all they should receive a thorough soaking, as driblets do more harm than good.

It would appear needless to remark that watering is unnecessary during wet weather; but if we wait till the ground becomes very dry, this happening in some cases directly hot weather sets in, the chances are we shall be too late, the ground, especially about gross-feeding plants, having become too dry to be easily moistened again. Supply water, therefore, before the ground is very dry, especially if liquid manure is available, this being best applied during showery weather. This watering should be followed by a mulching of any available rough litter or manure.

Owing to the mildness of the winter and accompanying heavy and frequent rains the ground is become what is expressively termed "unkindly"—that is to say, it does not separate so freely as it does after being well pulverised by the action of frosts, cold drying winds, and rains. We had April weather in March, and that also militated against those especially who, like myself, have to manage cold heavy land. As a consequence the ground binds and cracks badly during hot dry weather, and this must be anticipated both by frequent surface-hoeings and where possible by mulchings.

Manure and litter are not available everywhere; but there are substitutes, such as the grass from the mowing machine and trimmings, while even a little fine dry soil spread over the surface of seed beds after rain will serve to check rapid evaporation and consequent cracking. Flower beds especially are better for being mulched rather than heavily watered almost daily. The soil about the plants should be levelled after a heavy rain has fallen or a good watering given, and a mulching of leaf soil, cocoa-nut fibre, peaty soil, or short grass be given. The beds of Roses also should be mulched, nothing being better for the purpose than manure from the piggeries, this being faced with straw, or, if preferred, covered with a little loose soil. The month of May has been unusually hot and dry, and those who have already mulched different trees and shrubs newly moved, fruit and vegetable crops, may have cause to be thankful for their foresight, and will now reap the greatest amount of benefit from the refreshing rains.—W. IGGULDEN.

CELERY CULTURE.

It is generally admitted that Celery is one of the most important of all our autumn and winter vegetable crops, and to have it in sufficient quantity and in perfection should be the desire of every cultivator. With some it is a difficult crop to grow well, pithy and insect-eaten stems taking the place of sound and clean produce; but in many cases this is the fault of the cultivator, and may generally be rectified at the time of preparing the trenches and in after culture. I have often had soft Celery, but I was never satisfied with it, and now a pithy stick is a rare exception. Different parts of the garden were tried, and it is wonderful how well Celery will sometimes do in one part and how badly in another, especially when the soil varies in character. When, however, unsuitable soil has to be dealt with, the best way is not to run the risk of a failure, but prepare it properly before planting. Of all soils for Celery I prefer a light one, and the quarter occupied with Celery year after year is the lightest part in the garden. Except for exciting root-action, rich soil is not wanted for Celery. Indeed I should be fully satisfied had we only a good bed to plant in, and the surroundings sand or ashes; then insect injuries and loss from damp and decay in winter would be reduced to a minimum. A rich plot of soil might be thought a capital place for Celery by some, but I am only in favour of the poorest, and would never enrich any part of it, excepting in the immediate vicinity of the roots.

This is a seasonable subject, as now is the time to form trenches and plant, and a good mode of dealing with both will be briefly detailed. Trenches are frequently formed of various depths, some being only a few inches, others a foot or more; but the best of Celery may be grown in trenches about 8 inches in depth, and I would prefer having the plants on the level ground rather than in very deep trenches.

No manuring of the land should take place until the trenches have been dug out and formed. To dig manure in all over the surface of the piece and then make the trenches is a waste of manure and labour, but where the soil is heavy it is an excellent plan to spread a thick coating of ashes, sand, lime rubbish, or road scrapings on the

surface, digging and mixing them with the soil deeply. In forming the trenches afterwards the whole of this material will get well incorporated with the soil, and form a composition of the best description for earthing up when the time comes to attend to this operation.

In measuring off the trenches they ought to be cut straight, and the space left between them should always be a little more than their width. I have grown Celery in single rows and up to as many as six rows in a trench, but for convenience I prefer having two rows in each trench. To admit these the trenches should be from 15 inches to 18 inches wide, and the sides should be beaten firmly with the back of the spade, as it is not beneficial for the soil to be sliding down from the sides of the trenches before required for earthing up.

As soon as the trenches have been finished manuring should begin. I would avoid putting a layer of manure 6 inches, 8 inches, or 10 inches in thickness. Cow and horse manures are both good for Celery, and that from earth closets is best of all; but in each case mix them with wood ashes or sand and add 1 bushel of salt or kainit and 2 bushels of soot to each cartload of manure. This should then be put into the trenches in a layer of about 4 inches in depth, and then dig it in deeply. The soil at the bottom of the trenches will not appear very rich, but it will be amply so to produce clean crisp Celery of the best flavour and keeping qualities.

The plants should be lifted with as many roots as possible. By attending well to this very few will flower prematurely, as Celery is so apt to do. They should be let well into the soil, and immediately planting is done, if it does not rain, the bottom of the trench should be thoroughly watered. I do not approve of constant watering, but one or two good waterings given about once a week until the plants have rooted in the soil are sufficient. "Bolting" through dryness at the root is an uncommon occurrence, it more often results from careless planting and transferring the plants to the trenches without any soil to their roots. Then they are a long time in commencing growth, and when they do so it is only to flower and become useless.

As a rule it is a good plan to make two plantations of Celery, one early in June and another about the end of July. The first will be excellent in autumn and until the new year. Then the late plantation will give an ample supply in the spring months. Some of the latter planted last July have not shown signs of seeding yet; it is tough, but does very well for seasoning or stewing. Very early Celery, such as any which may be 1 foot or more in height by this time, will be useful in August and September; but much of it will be useless before the winter comes, and it must not be depended on for that season.

Large quantities of Celery, especially in small gardens, are often ruined through want of being earthed. As a rule it is a bad plan to allow it to grow to the full size and then give one earthing. It takes a long time to blanch in this way, the plants spreading out and falling so much apart that they never become compact afterwards. It is undoubtedly best to begin earthing when the plants are from 10 inches to 1 foot high; then only about 3 inches of soil should be placed round them, and as growth advances the same quantity may be added every three or four weeks until the greater part of the stem has been covered. I may here remark that it is placing the soil against the stems that causes the grubs to begin eating them, and this must be avoided. Rich soil almost always contains insects, hence the objection to it for earthing purposes. With such sand and ashes should be mixed liberally, and at each earthing a quantity of soot and salt should be mixed together, and the soil about the plants, both before and after earthing, freely dusted with it.—J. MUIR.

NOTES ON ORCHIDS.

MR. J. T. PEACOCK'S ORCHIDS.—An exhibition of great beauty and interest is now provided at Sudbury House, Hammersmith, the residence of J. T. Peacock, Esq., who with most commendable liberality has adopted this attractive means of adding to the funds of the West London Hospital. The large and handsome Agave house, which is a lofty span-roofed structure 50 feet high by 18 in width, has been cleared of its usual occupants, and now presents a floral spectacle such as is rarely seen in a private garden. About 1000 Orchids have been most tastefully arranged with Palms, Ferns, and Selaginellas, a centre and two side stages being filled, forming banks of rich and delicately coloured flowers mostly on graceful nodding racemes. There are probably 20,000 flowers expanded, and the effect produced by such a number can readily be imagined. *Odontoglossum vexillarium* predominates, and of this species alone in numerous grand varieties there are over 300 plants, all in the most robust health, and flowering superbly, some having three spikes to a pseudo-bulb. The colours range from pure white to the darkest rose, and there is not a poor variety amongst them all, every flower being not only of great size, but of excellent form also. *Odontoglossum Alexandræ* is

similarly well represented by most carefully selected varieties and well-grown plants, their wax-like exquisite flowers being very abundant. Scarcely less noticeable are some magnificent varieties of *Odontoglossum citrosum* with mauve flowers and fine rosy purple lips, while the lovely mauve-purple flowers of *Lælia majalis* are seen suspended on blocks amongst the others with charming effect. Rich shades of colour are furnished by the *Masdevallias*, such as *Lindeni* and *Harryana*, of which several magnificent varieties are represented. The fine orange-scarlet hues of *Epidendrum vitellinum* enliven the display greatly, whilst scores of panicles of *Oncidium ampliatum majus* supply the brightest shades of yellow. Suspended from brackets at the sides of the house numbers of healthy plants of *Phalænopsis grandiflora* bearing handsome pure white substantial blooms have a most pleasing appearance, their panicles, as in the case of the *Oncidiums* and some of the *Odontoglossums*, gracefully arching over the plants beneath them. The general effect, from whatever point the house is viewed, is admirable in the extreme, and in arrangement all that could be desired.

In addition to the principal features above indicated there are many curiosities and rarities that attract attention on every side. Especially noteworthy is a grand specimen of *Brassia verrucosa* with nineteen spikes, or considerably over 200 of its peculiar yellow and green flowers. Then two plants of *Lycaste Deppei*, each with thirty or forty flowers, are seen, and near them some curious *Masdevallias*, such as *M. macrura*, with yellowish dark-spotted flowers 11 inches across; *M. cucullata*, with its strange dark maroon flowers and light centre, and many others are equally worthy of note. The interesting slipperless *Uropedium Lindeni*, the large yellow *Anguloa Clowesi*, and the dark-streaked *A. Ruckeri* are similarly prominent. Very brilliant also, associated with the Orchids, are the *Phyllocactuses* and *Cereuses*, of which a fine collection is grown at Sudbury House, and many of the plants are now flowering profusely. *Phyllocactus Imperator* and *multiflorus*, the former with superb crimson-scarlet blooms of great size, and the latter with smaller but neat reddish flowers, are effective. *Cereus J. T. Peacock*, which is in the way of *C. M. Hovey*, is also a lovely variety of rich colour.

The exhibition will remain open for ten or twelve days, and no doubt a large number of persons will avail themselves of this opportunity to see one of the finest private collections of Orchids in the vicinity of London.

DENDROBIUM DEVONIANUM.—I send a bloom of *D. Devonianum*, the colour of which I think must have been caused by outdoor treatment last season. I have noticed several of the *Masdevallias*, especially of the *M. ignea* section, much brighter this year than before. The smaller bloom, for comparison, is from a plant which has not been outside with us yet.—G. W. CUMMINS.

[The colour was much deeper than is usual in this species, and there is little doubt that the difference has been occasioned by its stay out of doors. It is probable, however, that it will not prove permanent unless the treatment is repeated.]

VANDA TRICOLOR—ONCIDIUM CRISPUM.—I enclose a flower of *Vanda tricolor*, and I should like your opinion of its merits. It is from a single-stem plant which has borne three spikes, two of seven flowers, and one of six. I also send two samples of *Oncidium crispum*. The smaller one came named *O. crispum spectabile*. I am much pleased with your Orchid notes. I hope they will be continued. They are very interesting and useful for comparison with one's own productions. For instance, someone asked whether plants of twin-flowered *Lycaste Skinneri* were uncommon. I had one at the same time, and desired information on the same point. Then the number of flowers on *Dendrobium nobile* and *D. Wardianum* were given. My best *D. nobile* had twenty-six on one stem of last year's growth, and *D. Wardianum* twenty-four. Such items give an opportunity of judging of our success when we cannot make comparisons by personal inspection.—J. J., Lancashire.

[The *Vanda tricolor* is one of the finest we have seen, both in colour and size. The flower is $2\frac{1}{2}$ inches in diameter, with a clear bright yellow ground and heavy spots, blotches and marbling of red and brown. The *Oncidium crispum* is also a beautiful variety, the flowers being $2\frac{3}{4}$ inches from tip to tip of the petals, and the lip $1\frac{1}{2}$ inch in diameter. We have, however, seen darker-coloured forms. It is much like the variety usually sold as *O. crispum grandiflorum*. The flower named *O. c. spectabile* does not merit its name. It is small, the petals narrow, the brown colour is dull, and the few yellow lines or spots are pale. Far more beautiful is a variety named *marginatum*, which has a border of yellow round the petals and lip.]

ASPASIAS.—There are three or four Orchids in cultivation under the name of *Aspasia*, which, though less beautiful than many of their relatives, are curious and interesting. A good example of these plants is *A. variegata*, shown in fig. 107, which has fragrant green and yellow flowers, somewhat suggestive of the *Miltonias*. Another pretty species is *A. lunata*, of which there is a finer variety named *superba*, with chocolate-barred sepals and petals, and a white lip having a dark central blotch of violet. A yellow-flowered species, *A. lutea*, is also known but it is not very common. They are all inhabitants of South America, and succeed well in the *Cattleya* house.

CATTLEYA MOSSIE.—From a gardener's point of view this old inhabitant of our gardens is still one of the best and most useful *Cattleyas* that can be grown in quantity. When a good quantity of flowers are out at one time they are simply gorgeous, for they possess a great variety of colour, scarcely any two being exactly alike. With a number of plants a long succession of bloom can be obtained which often proves of greater service in gardens than a large quantity at one time. There is no *Cattleya* easier of cultivation or one that will flower with greater freedom on weak small-sized pseudo-bulbs,



Fig. 107.—*Aspasia variegata*.

if only they are produced under the influence of light and air to ripen and solidify the growth. When in flower this variety may safely be used in rooms where gas is not employed, or in the conservatory, where the flowers will last much longer than in the moist atmosphere of the house in which they are grown, provided they are watered with care, protected from cold draughts, or not crowded in the last position amongst other flowering plants. The admission of cold air directly upon the plants is the most detrimental, for they may fail to grow satisfactorily when returned to the heated structure. If the plants remain in the house in which they are grown while in flower remove them to the coolest and driest position. The material upon which they stand and their surroundings should be kept a little drier. Care should also be taken that water does not reach the flowers when syringing, or they will be spotted, and their freshness and beauty consequently spoiled.

CATTLEYA INTERMEDIA.—This variety is not so gorgeous as either the varieties of *C. Trianae* or *C. Mossie*; it is, nevertheless, worthy of a place where these plants are grown. Its flowers are delicate with its rich dark lip and narrow pure white sepals and petals. In some varieties the two latter are lightly shaded with pink, and it is difficult to determine which are the most lovely, the shaded or the white varieties. This *Cattleya* is the more useful because it blooms just after the varieties of *C. Trianae* are going over, and before many of the flowers of *C. Mossie* are expanded; this at least is its character

here grown with those varieties in a winter night temperature of 60°. *C. intermedia* differs from the majority of these plants in not flowering from mature pseudo-bulbs. It commences its growth in early spring and flowers directly the growths are completed. The flowers, which number five or six upon each strong pseudo-bulb, will last in good condition for nearly a month in a cool moderately dry atmosphere. After flowering roots are produced, and in due time another set of growths are made, but from these no flowers are produced. It may be supposed that this *Cattleya* does not need particular attention in ripening or a lengthened season of rest when the flowers are produced upon soft immature pseudo-bulbs. This is not the case, for its autumn growth must be well ripened, and a good season of complete repose is as essential to this as any other *Cattleya*. When making its growth in spring it should have abundance of light and a fair circulation of air to solidify the growth as it is being made, and the results are fine large flowers of good colour and substance. This variety does wonderfully well in comparatively small pots, and will also succeed on a block with a little moss, only more attention is needed in watering, therefore pot culture is preferred. When grown in pots a good per-centage of charcoal used in lumps should be employed amongst the moss and peat used for potting, as the roots like something to which they can cling.

DENDROBIUM PARISHII.—After the majority of spring-flowering Dendrobies are over this comes in most useful, and can be had in good condition over a lengthened period by retarding it in a cool house until later in the season before introducing it into heat. A good plant well flowered is very conspicuous. The pseudo-bulbs should be made under the influence of light, and well ripened, to be followed with a long season of rest. This *Dendrobium* will do well in either a pot or basket; the latter we prefer to grow it in, because its roots have a tendency to get out of the basket into the atmosphere. In which-ever it may be grown it does not require much material to root in, and is much better grown in all sphagnum and crocks than with an admixture of peat. I have several times potted it in a mixture of both, but have never been able to find any roots in the peat, but the roots cling tenaciously to pieces of pot and charcoal. It would be interesting to know if there are two varieties of this Dendrobe, the one with much shorter pseudo-bulbs than the other. I have seen plants with stout stems fully 14 inches in length, while the variety I have only makes them 6 or 7 inches long. The plants in question are not weak, because some of the pseudo-bulbs were sufficiently strong to produce two growths each last year. As well as I can remember there is no perceptible difference in the colour of the flowers, unless in the variety I possess they are a little paler in colour.

DENDROBIUM PULCHELLUM.—This charming miniature-growing variety should have a place in all gardens where Dendrobies are appreciated. It is indeed a gem when covered with its large beautifully fringed *D. Devonianum*-like flowers. It is best grown in a basket with moss and lumps of charcoal, and when once established it should not be disturbed, for it loves to be let alone. When established in a small quantity of rooting material, and the letting-alone principle adopted, it will grow and spread until it becomes one mass all over the basket. I had three or four small pieces given me eight years ago which were planted in a small basket made of hazel; the basket has been decayed several years, and is only held together by the mass of pseudo-bulbs and roots the plant has made. During the whole of this time nothing has been done to the plant except placing a little living sphagnum amongst its roots annually after flowering.

While growing this little Dendrobe requires stove heat, and the moist atmosphere of a genial plant stove suits it admirably. It should be well syringed and abundantly watered until growth is completed. A long rest after its pseudo-bulbs are ripe in a cool house, giving only sufficient water to prevent their shrivelling, is the secret of growing and flowering it well. It is evergreen, and its flowers are not serviceable for cutting unless they are wired, but when in flower the plant is very ornamental and attractive.—W. B. L.

THOUGHTS ON CURRENT TOPICS.

POSSIBLY there was never an article written, however excellent it may have been, that met the entire approval of everybody interested in the subject of it. There were some good articles in the Journal last week, the perusal of which gave rise to a few thoughts that were jotted down in writing. These are placed for what they are worth at the disposal of the Editor, and even at the risk of the thinker getting castigated for his pains.

WORTHY of its position is the article on espalier Apple trees, contributed by a gardener who has evidently proved their worth. By no other method of culture or training can so much fruit be had off the same extent of ground as on the trees in question. But I cannot think it necessary for spurs to be anything like a foot long for bearing grand crops of Apples. If a person cannot

produce all the blossom that is needed for as heavy a crop of fruit as the trees can safely carry on spurs of half that length, he will not win a medal for the successful management of fruit trees. The height of espaliers named, 6 feet 6 inches, is just what espaliers ought to be; and when I see lines of wires 4 feet high I conclude there is a great waste of space, for the foot and a half higher in a length of even 50 yards must give some additional bushels of fruit without the trees occupying any more ground. The transformation of ordinary espaliers into palmette verriers is not a bad notion. Some trees might, no doubt, be benefited by the change; but those on the old style that are well furnished and bearing freely I would leave alone, and so, perhaps would Mr. Luckhurst. I am inclined to think the transformation plan looks just a little better on paper than it would if carried out in the garden, at least by some persons and in the case of some trees; and I cannot clearly see how the space between two trees could be occupied after some feet had been cut from the larger branches and the resulting growths trained vertically. Can your correspondent assist me in thinking this matter out?

VINES come in for a large share of attention. Syringing, stopping, bleeding, and fruit-thinning do not appear to be settled topics. I think, on the matter of thinning, "J. J." is right, and that with very few exceptions indeed the tying-up of the shoulders of bunches of Grapes is a mistake. It makes the bunches look larger it is true, and the crop to appear heavier than it really is. This goes for something in these days of "keeping up appearances" in the vinery; but when the Grapes are off the Vines they are no better looking, if as good, by the spreading-out to which the shoulders have been subjected.

THEN as to syringing during the flowering period. I do not think the viscid exudation on Muscats is easily washed off by a "gentle syringing." The fluid is removed better by a sharp shaking. I think far more Grapes are set without syringing the flowers than by the adoption of that practice; at the same time, as an occasional shower does not impede the setting of Grapes in the open air, an occasional judicious syringing might not be injurious under glass, while the "baking process"—dry roots and a dry atmosphere—is decidedly prejudicial to the setting and swelling of the fruit. It is not everybody, however, who can set Grapes with the aid of the syringe so well as "C., Dorset," appears to do, and I think it very possible that there are both gardeners and amateurs who, if they imitated this method, might be disappointed.

NEXT as to Vines bleeding. Mr. Waiting appears to write rather dogmatically on this matter. "Water is the chief cause of bleeding" is the latest dictum. When Vines are already bleeding copious supplies of water will increase the flow and escape of sap, or water, but how anything done after an occurrence can be the cause of that occurrence I cannot quite see; indeed the matter is beyond my thinking powers entirely, but I may be dull. Let the wood of Vines be ripened completely, also the pruning be done early, and we shall hear little of bleeding Vines even if they are watered freely. If water is the cause of the evil, if it is an evil, it is, I think, the water in immature wood. What think others?

I THINK "Non-Believer" is inclined to be a little hypercritical on the subject of shortening Vine canes. There is nothing practically irreconcilable between the teaching of the late Mr. Pearson and that of "A Kitchen Gardener." Neither of these cultivators would presumably shorten all the rods at an uniform height of 8 or 9 feet in one case, or 12 feet in the other. It is quite as likely that the former gentleman if he were alive would allow some rods to have a bearing length of 12 feet, and that the latter would shorten others to less than 7 or 8 feet. Uniformity in this respect is out of the question. I have seen many rods left 20 feet long for bearing upwards of thirty years ago, but they were not weak; the weak ones were shortened then as now, and I think wisely; and I have seen not a few Vines, especially those newly planted, practically ruined by the canes having been left too long the first season.

My thoughts pass from the prince of fruits to the queen of flowers—Roses. "J. A. B." appears to have been singularly unfortunate with the beautiful and free Reine Marie Henriette. I have had the pleasure of seeing many examples of this Rose, and their condition has led me to think it one of the greatest acquisitions of recent years. I have seen it growing in the same border with Cheshunt Hybrid, growing as strongly and flowering as freely as that valuable Rose, but surpassing it in substance of

petal and colour. Does your correspondent prune his too closely? If he has not already done so let him try it on the "long rod" system, and if he has strong matured wood he may expect plenty of handsome flowers.

ANOTHER queen has been "sat upon"—Her Majesty. What next? Is "J. A. W." a floral communist? I thought when I read the bold letter how suggestive were the initials, and it struck me they were intended to mean what they spell—a bit of—well, good-humoured banter. Even if Her Majesty is large and sometimes flat before fading, like a *Souvenir de Malmaison*, she is a beauty nevertheless before reaching that stage, will find her way into most Rose gardens, and be first in the class for any light variety. Even adverse criticism often does good, and Mr. Bennett will not suffer by the attention that has been directed to this right Royal Rose.

"ADVERSE criticism!" I see the manner of exhibiting flowers is again reached by it. My thought on this subject is that in Carnation-showing no person should be allowed to receive a prize for flowers he did not grow and he did not "dress." Dressing has won many a prize. Comparatively inferior blooms skilfully dressed possess an advantage over better grown examples unskilfully treated; an exhibitor therefore should only have a prize for his own work, not for the work of another person. But as matters now stand it is not only not illegal, but quite permissible, for persons to win prizes at horticultural shows with products other than of their own growing, unless at least there is a rule to the effect that all articles must have been in charge of the exhibitor for a stipulated time for proving his skill as a cultivator. The authoritative exponents of horticulture in this country—the Royal Horticultural Society of England and the Royal Botanic Society of London, abrogated that rule and expunged that condition. It was evaded and cracked and broken, and big shows became of such importance that exhibitors were left free to get examples for staging one amongst another, or any way they could. What is the use, then, of finding fault with a method of exhibiting which is not in contravention of schedules? and what is the use of persons complaining who are suspected of indulging in a practice that is not prohibited? There are, of course, numbers of persons who would rather lose a prize than win it with the aid of another, but all men are not so particular, and complaints will necessarily continue as long as the combination practice exists, whether they do any good or not.

THE method of growing plants in turf as described on page 442 is an excellent one, provided there is no couch grass in the material used, and which it is not desirable to establish in gardens. All ordinary bedding plants will, under favourable conditions, grow better in squares of turf than in pots, and the best evidence has been produced of the suitability of turf receptacles for Vines and Strawberries in preparation for planting; but as I once established some very fine couch in a Strawberry bed and a flower garden—and the plan in that case was certainly not a success—I think it well to mention this circumstance, with the object of giving a hint to others who might otherwise make a similar mistake, and thus introduce one of the most troublesome of weeds into their gardens. I have used clean squares of turf for sowing *Mignonette* in for transplanting.—A THINKER.

THE QUEEN ONION.

WHY does not every gardener cultivate this valuable Onion? I have repeatedly drawn attention to it, and yet again I hear complaints of a broken supply of Onions because the mild winter caused the summer crop to start into growth prematurely in the store shed, and it became worthless before the autumn Onions were ready. Valuable as are the varieties of Tripoli Onions, upon not one of them can we depend for an early supply; but the Queen had good bulbs two months ago, and now there are plenty of really excellent bulbs, many of them being 4 inches in diameter, and are still growing fast. So few of them have run to seed that out of curiosity a row was taken at random, and only five have run to seed out of 135 in it.

The details of culture are few and simple. Sow on or about the 15th of July, not necessarily upon the permanent bed, but thickly upon any spare border. When the plants are 5 or 6 inches high take them up carefully, breaking no roots, and plant with a trowel in rows a foot apart and 6 inches apart in the rows. Water, weed, and keep the soil stirred between the plants with a hoe, and there will be an excellent supply next spring quite ready for use before the stored crop is exhausted.—EDWARD LUCKHURST.

ROSE REINE MARIE HENRIETTE.

A CORRESPONDENT in your last issue says that he has had this Rose for three years and never had a bloom from it. Three years ago a friend—well known to the readers of this Journal—procured for himself and

me a plant each of this Rose in pots. They were duly planted out, and while his, I believe, like that of your correspondent in question, has never produced a single bloom, and is, moreover, now acting as stock to a foster-child, mine produced flower buds the first year to such an extent that sixteen were sacrificed at one disbudding. Last year I had it on a warm wall facing south by south-east, and it was in bloom a fortnight before any other Rose. This year it and the *Gloire de Dijon* came in together. I cannot say much for the quality of the bloom. This year it is coming better, but generally speaking it is a long time in opening its buds; indeed nothing short of a hot day, such as we are not often favoured with, will induce it to open before the petals have lost the rich red colour shown in the bud, and have become of a washed-out pinky hue. The foliage, too, which is very fine, is tender, and is rendered unsightly by cold winds, which do not affect Teas growing on the same wall.

To an amateur who has but little space, or who has to look at both sides of a shilling before spending it, I would say, Wait a bit; the Rose may prove valuable, but at present there are more enticing investments in the market.

One word more. This Rose will strike in the open like twitch, scarcely a cutting failing. I see it will also bloom when on its own roots, but more I cannot at present say.—W. R. BLAND, *Derby*.

BOG GARDENS.

VERY few gardens of any pretension are without a swamp or bog garden, natural or artificial, and which with a little judicious care and management in selection might be made most attractive, and where now we may only find in great abundance Nettles, Rushes, and many other coarse-growing plants. That much may be done to enliven such places is fully proved in not a few gardens at the present time in various parts of the country. The choice of the plants most suitable for the different situations and aspects should be considered, and at the same time with regard to their seasons of flowering. In making artificial bogs shady corners should be chosen, and might be made to teem with interest.

In the country few gentlemen's gardens are without a natural stream or swamp, and these, with very little trouble might, and ought to be, made as beautiful as many of our mixed borders. In such places we may find the beautiful *Spiraea palmata*, and its varieties *intermedia* and *alba*, quite at home, adding a charm rarely felt in such situations, and enlivening the landscape. Here also may be introduced, with a sure hope of success, all the stronger-growing and charming-coloured *Iris Kämpferi*, a damp situation to all appearance being the main requirement for their successful cultivation. The *Typhas*, too, although many are natives of our own country, seldom get the attention which they deserve, for when planted with a view to natural effect they give a quiet at-home rest to the eye at times, and where glaring colours would be discordant. The great Spearwort (*Ranunculus Lingua*), with its large, handsome, sulphury-yellow flowers, and pretty glaucous stem-clasping leaves, would also be quite at home here, along with the Bog Bean (*Menyanthes trifoliata*), in the more swampy places, the flowers of which are prettily fringed, and almost, if not quite, equal to an Orchid in chasteness of design. The Spike Rush (*Eleocharis*), and the Cotton Grasses (*Eriophorum*), with their white woolly heads, lend to the scene a naturalness which it would be hard to imitate or arrange with an entirely artificial and exotic flora. Then amongst foliage plants many of the *Acanthads* might be introduced into the drier places with advantage, as also *Cladium mariscus*, *Saxifraga peltata*, *Equisetum maximum*, *Carex pendula*, *Rogersia podophylla*, and many others. A place might also be found for the Marsh Shield Fern (*Nephrodium thelypteris*), and also for Her Majesty, the Royal Fern (*Osmunda regalis*).

Among dwarf-growing plants we have also a large collection from which to choose, and as much must be left to the taste or inclination of the cultivator, mention of a few of the best and most suitable may suffice. On damp, but slightly raised positions, the charming Bog Pimpernel will find a home; and here special care must be given to keep weeds, mosses, &c., at a distance, as it might easily be overlooked, so close does it cling to the soil, forming as it creeps along a complete carpet, which in June is studded with its pretty pink blossoms "quite a picture." *Mentha Pulegium* is also suitable for such places, *Sibthorpia europæa*, *Samolus Valerandi*, and many others with the same low creeping habits.—D.

SYRINGING VINES.

THE excellent remarks on this subject by "C. Dorset," favour my previous observations rather than otherwise, as he states that much care is needed to avoid the injury that would surely follow. This being so where first-class appliances are used shows the syringe to be a dangerous tool at the period I remarked when used by amateurs like myself working under difficulties, with old houses badly ventilated, and very little coal.

I tried it once before thinning, but will never do so again. "C., Dorset," gives me and others much information on this subject—information which is not usually given unless elicited by amateurs like myself, learning and working under difficulties, giving their experience and results freely. First-class gardeners often have failures and are at fault, but they do not generally own them or publish them. I wrote from experience and results. I think the slender stalks of the Grapes are often injured by the use of the syringe at the time I named, and especially when recently thinned, and there is not much heat at command.

My remarks had more reference to the use of Hudson's dry soap at that particular time than in condemning the syringe when used with due care at proper times. Where there is little or no heat at command I would never syringe after the Grapes were thinned, but plenty of water must be thrown on the floor. Scalding results more from water hanging on them a long time than from real heat or other cause.—J. E. WAITING, *Grange-over-Sands*.

INSECT PROSPECTS OF 1884.

WE have had an April and May exceptionally dry. One very obvious and natural result is the swarms of the aphid tribes, which have greatly infested many plants lately, especially those of the Rosaceous order, both wild and cultivated. These insects do not like the heavy rains that we sometimes have during spring, by which they are washed off their food-plants, and seldom regain their footing; but a low temperature with easterly wind does not hurt them at all—nay, appears rather salutary to them. It has been noticed that weather which favours them does not so well suit their insect enemies, hence is an additional cause of their rapid increase. Another insect common at this season, and of rather disgusting habit (*Cercopis spumaria*), the Cuckoo-spit, if not more prolific than usual, has proved particularly hurtful to plants suffering already from the unseasonable weather, for the dryness of air has led the species to take deep draughts of the sap, which the plants could ill afford to lose. Centipedes and millipedes have been reported abundant in various localities, and it is stated the wireworms (larvæ of *Elatér* sp.) are benefited by a moist winter, as they can continue to feed, while frosts drive them deeper into the earth and render them torpid.

There is, however, another side more favourable; the mild and wet winter has rendered it easy for many quadrupeds and birds that feed partly or entirely upon insects to remove them from their winter retreats, underground or in the stems or roots of plants. Then the dryness of the land during the past spring has probably checked the emergence of some moths and other insects which had been in the pupa state since the autumn; also, amongst the early broods of caterpillars, hatching out of the eggs laid late in autumn or in the spring of this year, there has been much destruction of life, consequent upon the very ungenial nights and the fierce winds that have been so prevalent.—ENTOMOLOGIST.

CEREUS MACDONALDIÆ.

THE finest Cactus bloom I have ever seen was at Cromwell House on Tuesday evening, May 3rd. Part of the arch on which it is grown may be seen in fig. 93 of your issue of May 22nd, and is formed of galvanised wire netting stuffed with moss, in which the several varieties of *Cereus* root freely. It opened after sunset, and when the house was illuminated with electric light the scene was beyond description. The great specimens of *C. peruvianus* and various shades of colour in flower on smaller plants below gave the whole such an appearance as is seldom seen in an English garden. The bloom when fully expanded measured 14 inches across, and when closed in the morning was 17 inches from the stem to the top of the petals. Mr. Wright crossed it with the pollen of *C. speciosissimus*. Mr. Major may well be proud of his collection with such gems as the above, and I am sure every grower of Cactæ must feel greatly indebted to Mr. Castle for his very interesting and instructive articles on Cactaceous plants.—G. W. CUMMINS.

SMALL POTS FOR AURICULAS—WOOLLY APHIS.

WILL you allow me to add a few words to the remarks you kindly inserted last week on two points that I find I had omitted? The former of these will be opportune to amateurs intending to try Auriculas.

I would suggest that until better advised they use small pots. I nowhere see any good, but much the other way, resulting from the use of pots beyond 4 inches in diameter for the largest plants, and after a comparative trial some varieties, especially the more inconstant, as *Lycurgus*, *Mary Ann*, *Smiling Beauty*, will be placed in the 3½-inch pots I most prefer. I have over and over again observed the plants bloom indifferently where 5 and 6-inch pots are used, and all the best collections I know are restricted to the smaller sizes named.

Last month I saw the sole case of woolly aphis, which came under my notice, although I was told of another near. It had been imported from the south, and before it was detected the roots of nearly all the plants were infested with it, but by washing and planting them in frames the pest had been greatly reduced. I declined with thanks the suggestion to "take a breed and try." I did not like its appearance, and shall continue by washing with fir-tree oil all arrivals from proclaimed or suspected districts, and the enforcement of strict quarantine, to prevent its obtaining any footing with me.

May I add that, passing over the slight misprint in my last notes (page 446) in reference to the way "one gets on" in getting hold of

the rarer varieties, the substitution of "plantation" for "plantain" somewhat increased the extent of the odds against the Auricula.—A NORTHERN AMATEUR.

CYRTANTHUS MACKENII.

SEVERAL very beautiful and brilliantly coloured species of *Cyrtanthus* are known; but though the one shown in fig. 108 does not excel in brightness of colouring it is one of the most graceful and free-flowering of the genus. The flowers are creamy white, or occasionally with a distinct yellow tint, and they are produced on strong scapes 6 to 9 inches in height. It is



Fig. 108.—*Cyrtanthus Mackenii*.

very easy of cultivation, succeeding well in an ordinary greenhouse, but it requires a moderately rich light soil, and plenty of water when growing. I have had it for several seasons extremely fine in 60 and 48-size pots, and strongly recommend it for more extended cultivation.—L.

CERTIFICATED PLANTS.

THE following plants were honoured with certificates at the recent Show of the Royal Botanic Society at Regent's Park.

To Messrs. J. Laing & Co., Forest Hill, for
Tuberous Begonias, *General Gordon*.—Double, bright scarlet, very full and well formed.

Distinction.—Single, soft clear rose with a white centre; petals very round, and general form of the flower admirable. One of the most handsome varieties yet obtained, and certainly one which will become a great favourite.

Earl of Chesterfield.—Single, a magnificent flower 4½ inches in diameter, rich bright scarlet; most imposing.

Lady Chesterfield.—Single, of a bright pleasing rose colour; flower

of great size, about 5 inches in diameter, the petals being 3 inches across, rounded and symmetrical.

T. Hewitt.—Double, very full dense flower, dark scarlet.

Mr. H. Forbes.—Single, scarlet; a large, bold, handsome flower, well proportioned.

Mrs. Weekes.—Single, white margined with rose, petals round; an exceedingly pretty and distinct type.

Her Majesty.—Single, blush white, very delicate tint; the flowers 4 inches in diameter, round and symmetrical.

Caladium Madame Mitzand.—Leaves large, bronzy red, with bright red veins.

Caladium Baron James de Rothschild.—A pretty variety; leaves white with dark rose-coloured veins.

Caladium L'Aurore.—Leaves suffused with rose, having darker-coloured veins and a creamy edge.

Gloxinia Mrs. Coomber.—A distinct and handsome variety with large well-formed flowers, rich rosy crimson spotted on the lobes and margined with white.

Gloxinia Beauty.—Dark purple with a white margin, broad and well defined, dotted with purple; peculiar and pretty.

Gloxinia George Amer.—Rich rose with a white margin, finely dotted with rose. An exceedingly pretty variety.

To Messrs. W. Paul & Son, Waltham Cross, for

Rose Etendard Jeanne d'Arc.—A Tea variety with globular creamy white flowers, extremely fragrant; free and of good habit.

To Mr. H. James, Castle Nursery, Lower Norwood, for

Odontoglossum polyxanthum.—A handsome Orchid; the sepals and petals yellow barred with rich brown, the lip broad and fringed.

Odontoglossum mulus.—Very pretty; ground colour yellow with numerous bars and blotches of brown, the sepals, petals, and lip being tipped with yellow.

To Mr. Cypher, Cheltenham, for

Cypripedium Ræbelinii.—A new species in the way of *C. lævigatum*; the sepals white striped with dark purple; the petals narrow, twisted, 5 inches long, and of a purplish tint.

To Mr. B. S. Williams, Upper Holloway, for

Cypripedium ciliolare.—A handsome species suggestive of *C. superbiens*, of a purple hue, with regularly striped dorsal sepals and spotted petals.

To Messrs. R. P. Ker & Son, Liverpool, for

Croton Flambeau.—Very elegant; leaves narrow, 1 inch wide, 12 to 18 inches long, red, dark green and yellow, prettily mottled.

Croton Sunrise.—One of the most distinct and best-coloured varieties yet obtained; leaves 1½ inch broad, 12 to 18 inches long, bright golden yellow mottled with red and green.

Croton mosaicus.—Bolder in habit than the preceding; leaves 2 inches broad, 12 to 14 inches long, deep crimson mottled with dark green and yellow. Very handsome and effective.

Ficus elastica variegata.—Previously described on several occasions. A useful plant, preserving its variegation well.

To Messrs. Sander & Co., St. Albans, for

Odontoglossum elegans superbissimum.—A charming variety; ground colour, creamy white, with narrow sepals and petals, dark brown bars and blotches, and a yellow base to the lip.

To the New Plant and Bulb Company, Colechester, for

Acer palmatum roseum.—Similar in form to *A. palmatum aureum*, which has been previously described, but of a uniform bright red colour.

To Mr. H. Little, Hillingdon Place, Uxbridge, for

Pelargonium G. Shepherd.—One of the decorative varieties; the flowers of good size, scarlet edged with white; very showy and free.

Pelargonium Harvester.—One of the same type, with crimson lower petals, dark maroon upper petals, and a light centre; good habit.

VINES BLEEDING.

I HAVE read my notes on the above subject, and fail to see what cause I have given Mr. Waiting to speak of "beliefs, doubts, statements, and incredulity." Any candid reader will see that the statements unsupported by facts are on his side, not mine. I ask for proof, he has given assertion. He has also changed ground. In his former notes he said that water was "the" cause of Vines bleeding—now he says it is the "chief" cause. Why this change? If he was right in the first instance, why not hold his ground? and since he has conceded this much how are we to know where his concessions will end?

But he does not even attempt to answer my question as to why in a house one or more Vines should bleed, they having the same treatment with those that do not. Neither has he attempted to make good his assertion that bleeding is a great injury to Vines, and until he does this it is unnecessary for me to write more on this subject.

I see no reason why my belief or incredulity should puzzle Mr. Waiting, but perhaps it is what he is pleased to term my threat of a visit that is the real puzzle.

So far as I am able to judge, there is nothing surprising in the fact that a Black Hamburg cane 11 feet long should produce twenty bunches of the weight named; but to anyone who has seen Black Hamburg grown year after year there is something astonishing in the assertion that eleven and nine bunches respectively, weighing about three-quarters of a pound, should even form a perfect chain from the roof to the floor of a house 11 feet high. With his averages I have nothing to do. I await proof of his assertions.—JUSTITIA.

I AM not surprised that your correspondent Mr. Waiting's statements have attracted attention, because, like his Vines, they "will not hold water," notwithstanding the confident tone in which they are put forward. Mark his declaration at page 345 that "He could and would have stopped the bleeding of his Vines, but, accepting the theory of several writers that the so-called sap was only water without substance, he let them continue until they ceased." A likely plea this! Did ever anybody before hear of an intelligent gardener suffering his Vines to bleed to death, for anything he knew, on the strength of statements in a doubtful controversy, with the power of prevention in his own hands if he chose to use it, and therefore save all risk? I deserved to lose my crop, as Mr. Waiting has done since, if I acted in the same way and let bleeding go on when I could have turned the tap off, so to speak, and stayed it.

I have a conviction, however, that the real reason Mr. Waiting did not stop his Vines from bleeding was because he could not stop them if he had tried when once they had begun, neither by his plan of withholding water nor any other, save by lowering the temperature to as near the freezing point as possible (a thing seldom practicable) to arrest circulation, and painting the wounds after when dry with styptic. Having propounded the water theory it did not, however, suit your correspondent, I suppose, to admit that he could not prevent the bleeding. Blaming your contributors for the consequences of his own neglect will deceive no gardener. Mr. Waiting does not seem to encourage the proposed visit of "Justitia," and I am not surprised at it.

As to water being the cause of bleeding, your correspondent is safe in that view thus far—that a Vine without any water (sap) in its tissues could not bleed—if he ever saw such a phenomenal Vine; but water is not the "cause" which is wounding the Vine not long before the sap begins to rise. If water was the cause most Vines in the country would have bled to death by this time.—NON-BELIEVER.



AT a general meeting of the ROYAL HORTICULTURAL SOCIETY, held last Tuesday, Major F. Mason in the chair, the following candidates were unanimously elected Fellows—viz., John Ashton, Richard Bannister, Stanley Dent, Thomas Young.

— AT the Committee of the NATIONAL ROSE SOCIETY on Tuesday, the Secretary, the Rev. H. H. D'Ombra, exhibited a box of three Roses, consisting of two magnificent blooms of David Pradel, grown by Mr. Eckroyd Claxton of Liverpool, and a fine bloom of Etoile de Lyon, grown by Mr. Hall of Larkwood, Rockferry, which was greatly admired, and for which a vote of thanks was given to the gentleman who had so kindly sent them.

— MR. J. UDALE, The Gardens, Shirecliffe Hall, Sheffield, sends us an excellent sketch of a DOUBLE-SPATHED RICHARDIA, in which there are two spathes of full size and ordinary form opposite to each other, but one slightly the larger partly surrounds the base of the other. We have seen similar examples to this before, but they are not common, and whether the double form is more ornamental than the other is simply a matter of taste.

— THERE appears to be considerable difference in the extent of the GOOSEBERRY CROP in various districts, and even in neighbouring gardens; but it is extremely probable that the mode of pruning has something to do with this variation. We recently saw two gardens in Kent; in one the bushes were loaded with fruits, and in the other there were very few, but the plants had been very differently treated. In the former the pruning had been confined to removing a few superfluous branches and shortening some that were excessively long, whereas in the other the bushes had been pruned hard for several seasons. Similar examples may be seen in the neighbourhood of the metropolis, and in nearly every case the unpruned bushes have the best crop of fruit.

— INQUIRIES are frequent for TREES SUITABLE FOR SEASIDE GARDENS, and it is usually difficult to find sorts that will thrive in such positions. On the west coast of England, and especially in Lancashire, where the south-west gales are so frequent and violent, the difficulty is still further increased. In several towns there, but particularly at Southport, Sycamores are largely planted as screens and to form avenues in the principal streets; but as an ornamental tree none surpasses *Ulmus montana pendula*, which appears to luxuriate in the sea breeze, provided the position is not too exposed. Many beautiful specimens of this hand-

some tree are noticeable in the Southport Gardens, and their condition is most satisfactory.

— THE WESTON-SUPER-MARE AND EAST SOMERSET HORTICULTURAL SOCIETY will hold their annual Exhibition on August 19th.

— THE "COUNTRY GENTLEMAN'S REFERENCE CATALOGUE" (Barnicott & Son, 44, Fore Street, Taunton) is a useful list of works upon gardening, agriculture, and various branches of natural history, with brief descriptions and prices. A copy just to hand contains 126 pages, with a full index.

— "R. P. B." sends us a box of SPRING FLOWERS, fresh and beautiful, comprising the following:—*Clematis montana*, a perfect wreath of beautiful white flowers; *Anthericum liliastrum*, with grass-like foliage and white flowers; *Spiraea Van Houttei*, bearing abundant small trusses of neat round white flowers on red peduncles; *Ourisia coccinea*, very bright, the flowers rich scarlet tubes on long stems, and with heart-shaped leaves; *Iris graminea*, a charming plant, with long grass-like leaves and purple-blue flowers, prettily veined; *Meconopsis cambrica*, a striking plant, with bright yellow Poppy-like flowers and divided leaves; and the rich blue-purple *Myosotis Imperatrice Elizabeth*.

— THE ROYAL BOTANIC SOCIETY'S EVENING FETE is announced to be held in the Gardens of the Regent's Park on Wednesday, July 2nd, when the usual exhibition of floral decorations will be provided. The schedule enumerates fourteen classes open to all exhibitors, three prizes being offered in each, value from £10 to 10s. The principal class is that for floral decorations for a room, the prizes being £10, £7, and £3. Classes are also devoted to dinner-table decorations, one for hardy flowers only, and a third for three groups of hardy flowers for the table, one kind of flower only in each. Others are provided for baskets, bouquets, &c., and one for flowers which only expand at night.

— A PLEASANT GARDEN PARTY.—A correspondent, "H.," writes:—"Miss Jekyll of Munstead near Godalming, Surrey, kindly invited upwards of fifty gardeners from the principal gentlemen's seats in the surrounding neighbourhood of Godalming and Guildford on Saturday afternoon last, June 7th, to see her choice and very extensive collection of hardy flowers. Previous to being shown round the gardens they all sat down to tea, so liberally provided by this kind patroness of the craft. The gardens were in most excellent order, and were very much admired. Great cultural skill and artistic taste in arrangement are manifest throughout the whole place, which does great credit to Miss Jekyll and all concerned. All the visitors expressed themselves highly delighted with the entertainment, which seems to be a step in the right direction."

— WE have received the schedule of the LEEDS FLORAL AND HORTICULTURAL EXHIBITION, which opens on the 25th inst., prizes which ought to be sufficient to secure a fine display being provided throughout the seventy-five classes. In the chief classes—namely, for twelve stove and greenhouse plants, and for a group of plants for effect, the amounts are in the former case £12, £8, and £4; and in the latter £10 (given by the Mayor of Leeds), £6, and £3. The schedule states that "The prize list has been augmented by £50, which is considerably more than the profit upon the Show last year, and if the public support the Company in the undertaking, they will be enabled to extend the prize money still further, and thus make the Leeds Show what it ought to be, second to none in the kingdom." The railway companies convey plants free from the Show when they remain the property of the exhibitor, and the prize money is to be paid on July 3rd. Mr. G. Bush is the Secretary.

— A "REPORT OF OBSERVATIONS OF INJURIOUS INSECTS AND COMMON CROP PESTS IN 1883," by Miss Eleanor A. Ormerod, has recently been issued (London: Simpkin, Marshall & Co.), and, like preceding issues of the same work, it contains a considerable amount of interesting and useful matter. Chapters are devoted to the insects infesting the Apple, Bean, Cabbage, Turnip, Carrot, Celery, Cherry, Corn and grass, Gooseberry, Hop, Mangold, Onion, Parsnip, Pear, Peas, Pine, Poplar, Raspberry, and Strawberry. These are illustrated by figures of the principal enemies in various stages of growth, and a long appendix is devoted to a consideration of the Hop aphid.

— HUDDERSFIELD CHRYSANTHEMUM SOCIETY.—We are informed that a Committee of forty members has been formed for promoting a Chrysanthemum Show at Huddersfield, and in consequence of the

financial support accorded it has been resolved to hold the first Show of the Society on November 14th and 15th. A schedule is in preparation and will be shortly issued. Mr. John Bell, Royal Hotel, Huddersfield, is the Honorary Secretary.

— "M. S." writes that "one of the prettiest of dwarf plants now in flower on the Kew rockery is the handsome *HEUCHERA MICRANTHA*, which has been freely distributed lately under the title of *H. erubescens*, probably a misrendering of *H. rubescens*, but which is a totally different but allied plant. *H. micrantha* grows from 1 to 2 feet in height, and the leaves are few, round-cordate or oval-cordate, and about 3 inches in diameter, the lobes blunt and deeply toothed, and having hairs on their veins or ribs. The flowers are produced in loose panicles and are very graceful, with quite a unique appearance. It is found in woods on the coast ranges of Sierra Nevada, and may be cultivated easily in a shady nook in the rockery, using a good admixture of peat and leaf soil with the loam."

— THE fortieth Exhibition of the DISS HORTICULTURAL SOCIETY will be held at The Lawn, Diss, on Tuesday, July 8th. Ten classes are devoted to Roses, and in addition a challenge cup value £10 is offered by Francis Taylor, Esq., for the exhibitor who gains the first prize for thirty-six blooms twice. This prize was first competed for in 1883, and won by the Rev. H. E. Berners, Harkstead Rectory, Ipswich. Classes are provided for decorations, plants, vegetables, and fruit, and twenty-two classes are reserved for cottagers.

— MESSRS. T. CHRISTY & CO., 155, Fenchurch Street, London, E.C., write as follows respecting PEPPERMINT OIL:—"We wish to direct your attention to the profit attached to the growing of Japan Mint, owing to the largely increased demand for menthol, or the crystals extracted from the oil expressed from the Japan variety of Peppermint (*Mentha arvensis piperascens*). The subjoined extract from the *Public Ledger* of June 3rd is very important:—"An American correspondent informs us that the constantly and rapidly increasing demand for menthol, of which the supply is so greatly diminishing at a most inopportune moment, is having a strengthening effect on the market for peppermint oil of all descriptions; as in the manufacture about 60 per cent. of this oil is consumed; the demand at present existing for this particular use is quite expected to consume about 70 per cent. of the present stocks, and as it is now ascertained that the planting of the herb is small, it is not at all likely that the entire new crop will be sufficient to supply the requirements of this demand alone. The production of the last three or four years has been nothing like equal to the consumption, and the present world's stock of peppermint oil is, without question, not one-twentieth of what it was a few years ago, when prices were only some 10 to 15 per cent. below what they are now: the last time when the position of the article was as it is at present, values were nearly double what they are now quoted. The demand here is strong at three dollars nett per lb. for oil in bulk." This plant is perfectly hardy, and of as easy growth as our own Mint. Menthol crystals, that two and three years back we bought at 6s. and 8s. per lb., are now 40s. and 45s. per lb."

— THE Rev. D. Landsborough has recently paid a visit to a coal mine near Kilmarnock, Ayrshire, and thus describes the FOSSIL FERN BEDS:—"The fossils are here in considerable abundance and variety, but those who imagine they are to be had without labour are much mistaken, as they are embedded in the solid rock, from which they are with difficulty extracted, and are very frequently broken or otherwise injured in the process. We saw no specimens of *Stigmariæ*, *Sigillariæ*, or *Lepidodendra*. The fossils consisted almost entirely of Fern stems and fronds. The most common was *Sphenopteris latifolia*, bearing a general resemblance to a *Lastrea*. There were also specimens of *Neuropteris gigantea*, *N. Joshii*, *Odontopteris (lingulata?)*, *Pecopteris (muricata?)*, &c. A large specimen of any of these Ferns is valuable, as more knowledge of the plant is obtained from the examination of one such specimen than from many broken pieces. This is owing to the different appearance frequently presented by different parts of the same plant. Mr. Graham, the oversman, had by this time joined us. He has two specimens which quite puzzle me, and which I must refer to higher authorities. These Ferns, now lying under a weight of 700 feet of solid rock, before this rock was formed, grew on what was then the surface, enjoying the light of heaven. A pool of water was here connected with a stream. These Ferns were brought down by the stream, carried by an eddy into a quiet corner of the pool, where they were deposited, just as I have a hundred times seen *Algæ* spread out, as these Ferns are, in all

their beauty in sandy pools at Saltcoats. When thus outspread they have been gently covered by a fine light-coloured clay, have gradually been carbonised while the clay has been converted into rock, and now at the end of ages they have been visited by a resurrection morn. The beauty of the plants is much heightened by the dark colour of the carbon contrasting with the light-coloured stone in which they are outspread."

— AT the ordinary meeting of the ROYAL METEOROLOGICAL SOCIETY to be held at 25, Great George Street, Westminster, on Wednesday the 18th inst., at 7 P.M., the following papers will be read:—"The Equinoctial Gales: Do They Occur in the British Isles?" by Robert H. Scott, M.A., F.R.S., President. "On the Physical Significance of Concave and Convex Barographic and Thermographic Traces," by the Hon. Ralph Abercromby, F.R.Met.Soc. "Maritime Losses and Casualties for 1883, Considered in Connection with the Weather," by Charles Harding, F.R.Met.Soc. "The Helm Wind," by the Rev. Joseph Brunskill, F.R.Met.Soc. "Climate of the Delta of Egypt in 1798-1802 during the French and British Campaigns," by W. T. Black, F.R.Met.Soc., Surgeon-Major. The Commemoration Dinner will take place at the Holborn Restaurant, High Holborn, on Tuesday, June 17th, at 6.30 P.M.

— AWARDS AT THE BATH AND WEST OF ENGLAND SHOW AT MAIDSTONE:—Fruit cup, Mr. C. Haycock, gardener to Roger Leigh, Esq., Barham Court, Teston, who staged fine Melons, Peaches, &c., and plates of well-kept Apples—Alfriston, Ostogate, Belle Bonnier, and Calville Rouge. Second, Mr. Waterman, The Gardens, Preston Hall. In vegetables they were reversed, Mr. Waterman being first with a fine named assortment in clean and fresh condition. Mr. C. Haycock second. The cup for Orchids fell to W. E. Brymer, Esq., M.P., of Dorchester (Mr. Poyle gardener); Mr. Cooke being a good second with a fine group from D. Barri Crawshay, Esq., Rosefield, Sevenoaks. The cup for the best specimen Orchid fell to Mr. C. Haycock, who staged a well-grown *Vanda suavis*. A good collection of vegetables also came from Mr. Wilson, gardener to G. Ashley Dodd, Esq., Surrenden Park, Ashford. Melons, Strawberries, and Cayenne Pines came from Mr. McKenzie, Linton Park Gardens.

— GLASS STRUCTURES AT MAIDSTONE.—At the Show above named, although the glass erections were not numerous, they presented a few features worthy of notice. Messrs. Wright & Co. showed some pits and lean-to houses; Messrs. W. E. Rendle & Co. houses showing their patent system of glazing. Mr. W. Richardson, Darlington, showed a wall-tree protector and lean-to vinery, and a very handsome small conservatory in the Queen Anne style with admirable ventilating gear. Mr. W. Parham, Bath, also showed some useful houses. Messrs. Foster and Pearson of Nottingham showed their prize-medal pits, the ventilating gear of which is still further improved, and also a very well made and proportioned small greenhouse; a new latch of solid brass is at once a marvel of utility and usefulness, being not liable to get out of order. Mr. A. T. Goodwin of Maidstone showed a novel plant house; the glazing being done in sashes allows the putty to harden well before being exposed, and a house can be put up in a few days. The ventilation was also good, one side of the ridge being opened at a time to avoid draughts. The inconvenience of brickwork and the consequent litter and trouble is avoided by using a foundation of concrete blocks, which any labourer can lay. They give the house a neat appearance, and the house generally would be suitable for the villa garden. In looking over these houses we were struck with their low price, machine-work and the present price of glass bringing them within the reach of persons of moderate means. Messrs. Foster & Pearson sent a model of their "Chilwell" boiler, which appears admirably adapted for heating a large extent of piping.

PLANTING AND ARRANGING FLOWER AND SHRUB BEDS.

THERE seems to be a difference of opinion as to which is the most suitable mode of planting flower and shrub beds. Generally the planting is commenced in the centre. This may seem the best system to some people, but gardeners, who have had to arrange flower beds so that they may have a uniform appearance when finished, have come to the conclusion that they must not commence planting in the centre. I daresay there are many readers of the Journal who have commenced planting in the centre of a bed, and when they came to the last row outside have found that the plants will not fit in well, and the result generally is that many of the plants have to be re-arranged. If the planting commenced at the outside this irregularity would not occur, and in finishing the centre is easily filled. It is the same when planting a bed of *Rhododendrons* or other shrubs. If the outside rows are planted first the centre plants can be arranged so as to have an artistic and workmanlike finish. If there is likely to be any difficulty in carrying the shrubs into the bed

after the outside rows are planted, and if the plants are of large size, two or three may be left out of the outside rows, when the centre plants may be easily carried in. But in planting flower beds fill up as the work proceeds; the soil or plants will not be trampled if the workman is careful. Another advantage of this system of planting is, if the supply of plants is short they can be widened out and would still look well. There may be exceptions to finishing in the centre. In round beds, for instance, there may be a specimen plant to be placed in the centre; this should be planted first; but still commence at the outside when planting the groundwork of the bed.—A. YOUNG.

RODGERSIA PODOPHYLLA.

THIS is a rare herbaceous plant, and one eminently fitted for cultivation by the side of lakes and small ornamental waterways, its large, graceful, and attractive foliage being very conspicuous in the distance where the plant is grown in quantity. The leaves are divided into four nearly equal diamond-shaped leaflets, of a very agreeable light green colour, which makes a fine contrast with the brown or purple finely serrated edges. The flowers, although individually small, are numerous produced on long clustered spikes rising well above the foliage, whitish, and not unlike our common Meadow Sweet in general appearance. To grow it well it requires strong rich loam, and will be all the better for occasional feeding during the growing season. It should be planted close to the edge, and will be all the better for having its roots touching the water. The beauty of this plant under the above conditions will amply repay any small attention it may require during establishment.

The Peltate Saxifrage (*S. peltata*) will be found to be a very suitable companion to the above in every way; indeed they may be very advantageously grown side by side, their appearance being quite different, and while the flowers of the *Rodgersia* are produced when the leaves are fully developed, those of the other are produced in early spring and before the leaves begin to start. The flowers are rosy purple, and are borne in large round heads about the size of a closed hand, and are very pretty. The leaves are large, round, and attached to the stalk by the middle, on the under side, and shaped like an inverted umbrella, some of the larger ones holding as much as half a pint of water. A compost of nearly three parts peat to one of sand and loam suits this plant admirably, and if possible a partially shaded nook should be chosen.—M.S.

A SIMPLE MELON SUPPORT.

THE accompanying sketch represents the simplest and best means of supporting Melons which I have yet met with. Obtain a piece of any

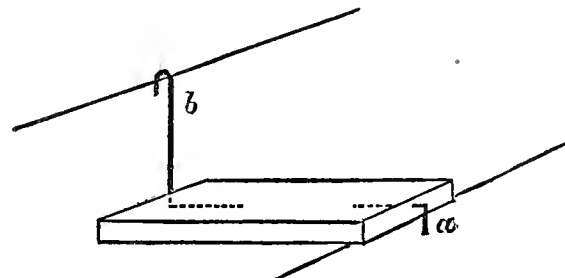


Fig. 109.

hard well-seasoned wood about 5 inches wide, cut it into 8-inch lengths; bend some pieces of stout wire into those represented at *a* and *b*, and drive one into the centre of each end, and the thing is complete. It will be understood that the length of the hooked wire *b* must depend upon the angle of the roof on which it is to be suspended. Place the support on one of the wires as at *a*, and, holding it as near as possible level, measure how far it is below the next wire above that on which it rests, and make the hooked wire *b* to correspond. Fruit supported on these are nearer the glass than if they were suspended, and consequently they can with less trouble be fully exposed to the sun when ripening. No tying is ever necessary, as they can be placed on them as soon as they are "set," and the only after attention needed is—when the fruit begins to attain some size—to place two or three small pieces of wood round the fruit on the supports, to keep it from rolling while syringing, or should the wires get shaken while attending to the plants.—R. INGLIS.

BIG ROSES.

AS regards these I cordially agree with your valued correspondent, "C. P. P.," that size can never be a disqualification when the quality is maintained. Truly, if the larger specimen is the coarser let it go to the wall, but if we have equally fine quality with larger size let the larger win. Who, for instance, would object to one of the small but first-quality Pears being the size of a baking Pear, provided the grain and quality were equally free from coarseness? Certainly the eater would not. The whole of this question turns solely on the quality. I have not yet made acquaintance with Her Majesty, but am prepared to worship. If Her Majesty be Charles Lawson improved in form few Roses can be of a lovelier colour. Will Her Majesty, if of this large size, be a great acquisition to our stands? Well, I should say only under certain circumstances. It will not do in my humble opinion to place her in the back row even if the said bloom be very much larger than the rest of the blooms in the stand. Certainly the more even in size

the blooms are, being slightly larger towards the back of the box, the better, provided they are sufficiently large. Madame Noman is so exquisitely beautiful, and withal so rarely seen, that I do not wonder at any judge giving a stand of Madame first prize if they were good, but such a decision should not upset the present generally received opinion that size coupled with quality must carry the day, "J. A. W.'s" protest notwithstanding.

I will go every inch of the way, too, with "C. P. P." in praise of the beauty of A. K. Williams. That splendid Rose merits all that can be said of it as to beauty, and he is a worthy partner for Marie Baumann at the head of the Rose poll; but—aye, there it is, that wretched but. Well, I cannot help it, I write the truth as I find it, and here I write also the experience of several other friends in this district—gladly, very gladly should we like to find in the gentleman a little of the constitution of the lady. We had no winter we might say; we had some cold, very cold weather in May, but it seemed to me that the mischief had been done before. Anyway, plants not a few in this neighbourhood of A. K. W. are starting so feebly or not at all that one is forced to the conclusion that the constitution of the gentleman lacks very sadly the stamina to be found in the lady. I went into a friend's garden last week. "Look," was his remark, "look at the wretched exhibition A. K. Williams is making; that's all I can show out of a dozen plants. I fear he won't do here." And this is not a solitary verdict, and my own experience coincides with it. Very possibly this is only our "misfortune." I do not think it is our "fault;" but at any rate with us I believe we should all agree to doff our hats to the lady and give the highest place to her.—Y. B. A. Z.

ALPINE AURICULAS FOR THE GREENHOUSE.

THERE is a hazy undefined sentiment among gardeners as a class that florists' flowers are not worth growing; a state of feeling which florists themselves have perhaps contributed to in no slight degree. A florist of the strictest type defined the position he himself occupied as a cultivator—and it is a position that many others occupy—in these words: "I don't care," he said, "for flowers which cannot be critically examined and admired. A good Auricula I can spend a quarter of an hour over, but the flowers in common cultivation do not attract my attention at all." It must be conceded that it requires a period of educational effort to attain to the standard of our florist friend, and it is not perhaps desirable that all of us should be so critical in our floral requirements.

To those who like a showy flower of a refined type, no better subject can be chosen than Alpine Auriculas. Mr. Turner has effected such an improvement on these during the last ten years as to bring them within the range of everyday gardening, at the same time that the standard of the florist is more nearly approached. Fifty or a hundred well-grown specimens of the better varieties will make a feature in any garden well worth the little trouble attending their culture. I do not know any flower so easy to manage as these, or that attracts more attention. Plants in 5-inch pots are allowed to produce half a dozen large trusses, which, if not so showy as Cinerarias or Pelargoniums, are vastly more interesting and attractive.

The present is a very good time to procure a stock of plants, and though it is not possible to make a great show the first year, they will bloom sufficiently to give an earnest of what may be expected in the future. The newer varieties have nearly surpassed the older ones; but of the latter, Diadem, Sydney, Mercury, Bronze Queen, Colonel Scott, Mrs. Meiklejohn, are still worth growing; and the newer sorts, such as A. F. Barron, Mrs. Dodwell, Mrs. Llewelyn, Sensation, Topaz, Slough Rival, Mrs. Thomson, Philip Frost, and John Ball must also be grown. The easiest way to grow these is to plant them out in good soil from the end of May until the beginning of the succeeding February, when they must be lifted and potted and brought on in frames, again planting out when the flowering period is past. When growing all the year round in pots, the plants are best repotted immediately after they have finished blooming, shaking the soil from the roots in much the same manner as with Pelargoniums. Some of the older roots are removed along with the bottom portion of the so-called taproot. Any offsets ready are at once removed; though with a stock of established plants the easiest way to increase the number is to divide the larger plants into two portions and make each a separate plant. The soil suitable for Pelargoniums, Chrysanthemums, or Carnations will grow these equally well. Efficient drainage is a necessity, and firm potting is advantageous. After repotting, the plants require to be kept close and shaded for a fortnight or so; they only require the protection of a frame from extra abundant rainfalls.

As regards seeding the plants and raising seedlings, it will be found best to cross-fertilise the flowers. A much larger crop of seed is thus produced. It is simply managed by examining the plants set apart for the purpose with a camel-hair brush daily,

fertilising the flowers. Sow directly the seeds are ripe in pans filled with light soil; place them in a moist cool house shaded from sunshine, and the seedlings will soon appear. With ordinary care the seedlings will flower the second spring after the date of sowing. If good for nothing else these will be extra fine for borders and beds out of doors.—B.

LILIUM LONGIFLORUM VAR. HARRISI.

THIS is a most lovely plant, and of great value for growing in pots for conservatory decoration and for cutting for vase decoration. It can be forced easily, and with a sufficient number of plants a supply of bloom can be obtained for a lengthened period without a break. I am not acquainted with its history, and have only grown it this year for the first time. Some of the plants were grown in a cool stove from the beginning of January. These flowered about the end of April; others grown on in a cool house and taken into warmer quarters in March are flowering from the middle of May, with some to open at the end of the month. The compost which seems to suit them is fibrous loam, peat, and silver sand. In this they root very freely and take a large supply of water. The pots are standing among Ferns, so as to keep the roots as cool and damp as possible. I intend to have the plants in a cool house throughout the ripening period, and repot the bulbs after a good rest in October or November. Grown in 5-inch pots the strongest plant showed four flowers of the purest white.—B.

THERE is no doubt as to the superior value of *L. Harrisi*. In the autumn of 1882 I secured two batches direct from America, the sender of each batch claiming to have the "true variety," and upon examination of the bulbs I fancied there was a slight difference in one lot. The scales were very long and narrow, much longer at one end than the other, giving the bulbs an oblique form; in the other they much resembled the ordinary bulbs of *L. longiflorum eximium*. Each batch was potted separately and marked with the initial letter of the sender, and small lots of typical *L. longiflorum eximium* and *L. Takesima*, all direct from Japan the previous season, were potted with them with the idea of giving them precisely the same treatment, and as far as possible this was carried out; the result being that *L. Harrisi* were the first to bloom, *L. eximium* and *Takesima* (which are identical) second, and the normal *L. longiflorum* last.

I may mention that there were two distinct forms imported from America under the name of *L. Harrisi*, one proving, as far as my judgment could discern, nothing more than *L. eximium* both in flower, manner, and time of flowering; while the others were what I regard as the true *L. Harrisi*. It has a very erect habit, with narrow nearly erect leaves, thus differing from *L. eximium*, which has broader and deflexed leaves; the flowers of *L. Harrisi* are also longer and narrower in the tube, and the perianth divisions more recurved. In these particulars it differs materially from typical *L. longiflorum*, which has a much shorter tube, much dilated at the top. The bulbs of *L. Harrisi* are remarkably free, for before the first stems had finished flowering others were coming from the base. The result was that in September and October another good crop of blooms was enjoyed. I am referring now to its behaviour under pot treatment outside. I am not aware that any other form of *L. longiflorum* does this. The same bulbs are now in pots outside, and showing flower buds with additional strength. I have had some with four and five flowers, but cannot yet say how many will be produced this season. In this particular they do not differ from *L. longiflorum eximium*; the main difference seems to be in the habit, length of tube, and the repetition of blooming in the same season without resorting to forcing. More than one American grower informed me that it may be kept constantly growing, and will continue to bloom if the bulbs are repotted after flowering.

The history of this variety is obscure. It is said that it was introduced from Bermuda; probably it may have been, but it is more than probable that it was first introduced into that country from Japan, and it may be that owing to the most genial climate that the variety has attained its floriferous characteristics. It will be necessary to watch it for a few years to know if that feature is permanent, and as far as I know no Lily should prove more useful for decorative purposes. Upon one point I feel confident—viz., that *L. eximium* has often been substituted for the supposed true *L. Harrisi*.—J. T. R.

COSMOPOLITAN POTATO.—This is an excellent time, for the next few weeks, to compare the foliage and growth of different varieties of Potatoes

as long experience induces me to attach much importance to both. I have about thirty varieties growing side by side—early, intermediate, and late, many only introduced within the last few years, and it is very interesting to note their progress and appearance from day to day. The most remarkable of the whole is the above, and it certainly is the most promising. It is not a tall grower, but the leaves are as large as a Cabbage, and of a fine dark glossy green, much smoother than the majority of other varieties grown under the same conditions. Last year

now established that a visitor can fully rely upon finding abundance to compensate him for his journey. Numerous classes well filled with examples of the best culture must present something of interest, and possibly of profit too. If it were for one circumstance alone a southern cultivator would reap no inconsiderable benefit, and that is the genuine enthusiasm which prevails amongst our northern friends, a most pleasing unanimity amongst the promoters of horticulture, and an absence of petty jealousies that too frequently mar meritorious projects. The



Fig. 110.—LILIUM LONGIFLORUM VAR. HARRISI.

the tubers were large, but I had but a limited quantity, and kept most of them for propagation.—W. J. MURPHY, *Clonmel*.

NOTES AT MANCHESTER.

THE Whitsuntide Show at Manchester has gained a great fame throughout this country, and in consequence many horticulturists pay an annual visit to the great Cotton City, with the object either of contributing some of their productions or to inspect and criticise those of other members of the craft. So firmly is the reputation of the Show

result of this earnest combination of workers has been the institution and growth of the Manchester Show to its present magnitude and excellence, highly creditable alike to its organisers, its subsequent management, and its liberal supporters. As the veteran exhibitor, Mr. B. S. Williams, pointed out at the dinner on the opening day, this success is due in a large measure to a judicious liberality with the prize money, and to the generous encouragement given to amateurs, meaning thereby gentlemen or others who do not grow for sale. Undoubtedly this is a point of great importance, and the opinion, coming as it did from an experienced nurseryman, should have great weight with the

managers of horticultural shows. The fact is obvious, if the best amateur productions can be procured at a show the nurserymen will, in their own interest, soon be there. Experience, too, has proved that the prizes must be sufficiently high to guarantee to the winners ample compensation for their time and labour, for when the prize money was small at Manchester the Show was a financial failure, but since the amount has been so substantially increased the Shows have resulted in a most satisfactory balance. These are hints that the committees and secretaries of societies may ponder over with advantage.

THE PEAK DISTRICT ROUTE.

So it is that scores of gardeners and garden lovers wend their way northwards at the approach of the Manchester Show, and with the majority the favourite route is the Midland line, which passes through the beautiful peak district of Derbyshire. I have travelled over this line many times, but on each occasion this portion of the journey presents something fresh and picturesque, and if the traveller be favoured with sunny weather a more charming ride could not be desired. It is especially enjoyable by those who are accustomed to the quieter beauty of our southern counties with their modest gently rounded hills and extensive commons, or level meadows, for in the Peak district we get a miniature representation of some of the great Alpine regions. After passing Derby when going northwards, until arriving at Marple, the scenery is most varied, always beautiful, and sometimes grand in the extreme. Dashing through a tunnel we are the next moment upon an embankment perhaps 100 feet high, commanding extensive views of deep winding valleys, with a rocky watercourse at the bottom, lofty hills sometimes densely clothed with trees and shrubs from base to summit, and other times rigid, cold, and bare, except for the scanty grass which manages to find subsistence almost on the bare rock. Again, perhaps, is seen a steep escarpment, upon which the action of the weather is plainly visible, the slopes and valley below being covered with the separated portions, sometimes tons in weight, forming geological lessons of considerable interest. Especially beautiful is the district between Chapel-en-le-Frith and Buxton, and near the former station is a grand amphitheatre of hills, rising at several points into sharp peaks far above the others, and enclosing a charming valley, through which a small river can be seen dashing over its stony bed. There is much to admire of a similar character along the entire route, thoughts of which the traveller will bear with him amongst the most pleasant memories of his visit.

THE ORCHIDS.

At the Old Trafford Gardens a great surprise awaited all arrivals in the magnificent Orchids which occupied so large a space in the exhibition house. These plants have for several years been admirably represented at the Whitsuntide Show, but never has so large a display of such grand specimens been seen there. It was estimated that the total value of all the plants in the Exhibition was not less than £20,000, and of this the Orchids alone would have formed a large proportion; for one specimen, Mr. Percival's unrivalled *Cattleya Mendeli*, has been valued at £300. About 220 specimen plants were contributed, and many of these could not be equalled in the kingdom. Mr. Percival's Orchids were, of course, the great feature, such large, vigorous, and profusely flowered examples being rarely seen either in exhibitions or private gardens. The *Cattleya* above mentioned and *Laelia purpurata* with eighty flowers were superb, and proved conclusively how well their culture is understood at Southport. Dr. Ainsworth's *Phalenopsis amabilis* with forty spikes, or a total of about 200 flowers, was another specimen of special note; while Mr. J. Broome's *Vanda teres*, 5 feet in height with fifty spikes and about 200 blooms, was another grand example of culture. These were a few of the leaders amongst an army of amazonian beauties which excited the astonishment of many visitors and the admiration of all.

MR. JOSEPH BROOME'S PLANTS.

Since the establishment of the Manchester Botanical and Horticultural Society, Joseph Broome, Esq., of Wood Lawn, Didsbury, has taken an ardent interest in its welfare, and has endeavoured in every way to contribute to its success. As Vice-President he has been enabled to still further assist the Council and Curator both by his advice and by more substantial pecuniary support. His large collections of plants, too, have repeatedly added greatly to the attractions of the exhibitions, but never has he exhibited so largely or successfully as at the recent Show. Orchids, Crotons, Dracaenas, Pitcher Plants, Ericas, new plants, Sonerilas, herbaceous and alpine plants, with Pansies and Violas, furnished attractions in every tent, and throughout the plants were marked by a fresh healthy appearance indicating the best attention. Particularly fine were the *Nepenthes* and *Sarracenias*, which I have never seen equalled at any exhibition. *Nepenthes Mastersiana* is gradually gaining favour in gardens, and such magnificent examples as that from Wood Lawn, with ten massive richly and uniformly coloured pitchers, will aid materially in increasing its popularity. It is indeed a handsome species, the dark red colour being so rich and distinct. *Nepenthes bicalcarata* from the same garden, fully 6 feet in height, growing with the utmost luxuriance and bearing a dozen of its gigantic pitchers, is probably unique. The well-known *N. Rafflesiana* was loaded with well-coloured pitchers; and the *Sarracenias*, 2 and 3 feet in diameter, grandly coloured, especially *S. purpurea*, which was magnificent in every respect. *Sonerilas* are charming little plants, but are rarely exhibited and too seldom grown as they should be, Mr. Broome's collection includes some of the most distinct and pretty, grown in shallow pans, their neatly marked leaves coming well coloured in a light position of a warm house. The herbaceous and alpine plants showed the same good culture and neat correct labelling which have been

previously commended in these pages on several occasions, the other miscellaneous contributions being equally creditable. A few such wealthy and liberal supporters as Mr. Broome insure a large share of success, and the Society is fortunate in having obtained his assistance.

It may be added that the garden at Wood Lawn, though not extensive, is in some respects a model one, thoroughly well kept in every department. The outdoor beds, borders, and rockeries are well stocked with the choicest and most effective of hardy, herbaceous, and alpine plants, the houses being similarly filled with tropical plants. One house, or rather a corridor, merits, however, a special note. This is kept bright and attractive throughout the year by the most ornamental herbaceous plants, which are grown in pots for the purpose and transferred to the house when required. Some extremely pleasing displays are thus produced, and by a judicious selection of species and varieties it is surprising how well a constant succession of bloom can be insured. It is simply a conservatory of hardy plants, and the plan might well be more generally adopted, as there are many beautiful, but slightly tender, plants which are rarely seen at their best in the open border, whereas under glass their flowers can develop uninjured.

MESSRS. W. & J. BIRKENHEAD'S FERNS.

The charming group of Ferns from this firm was one of the features of the Exhibition, a most tasteful combination of elegant foliage and varied shades of green. Examples of this style of grouping plants have for several years been prominent at Brighton and Eastbourne Shows, where classes are specially provided for them; but the idea does not appear to have extended beyond these Societies. Messrs. Birkenhead therefore set a bold example in entering the class for a general group of plants with one composed exclusively of Ferns. It was, however, so greatly admired that it is to be hoped that some special encouragement will be given to this form of grouping.

A large number of species and varieties were represented in the group, but to gain an accurate idea of Messrs. Birkenhead's stock a visit must be paid to their Fern Nursery at Sale. There the Fern-lover will find ample to interest him, for some seventeen or eighteen houses are devoted to these graceful plants, forming probably the largest collection of Ferns in cultivation. All the best-known and generally useful species of both hardy and exotic Ferns are grown in thousands, and a glance at the house of sporelings ready for potting occasions a feelings of wonderment as to where they will all find homes. There certainly appears to be enough to stock the entire country, yet Messrs. Birkenhead occasionally find it difficult to meet the demand for some particular species. At this time of year, when the majority of the plants are making fresh growth, their appearance is especially beautiful, their bright green elegant fronds rendering the houses very attractive. In every department the Ferns are distinguished by a robust healthiness that is most refreshing, and there is an absence of that drawn flaccid flimsiness which too often characterises Ferns in private gardens. One cause of this greater sturdiness is the practice of exposing the plants freely to light without going to the extent of permitting the young tender fronds to be injured by bright sun. What might be termed the "dark" system of culture has too long been followed with Ferns, and the result is that in many establishments plants may be seen dragging out a miserable existence, unsatisfactory alike to gardener and employer. There is, however, a gradual awakening to the fact that Ferns, like other plants, do not under cultivation require to be perpetually in a state of semi-darkness, and with better houses, stages, or shelves nearer the glass, and more liberal ventilation in suitable weather, the plants are more likely to develop their true beauty and proportions. Another matter which has been fully proved in the Sale Fern nursery is that peat is by no means so necessary for Ferns as has been so long supposed, better and more substantial growth being obtained from Ferns in a compost of good loam and leaf soil than from the best peat obtainable. Indeed, there are some Ferns, and amongst them may be mentioned the *Scolopendriums*, which thrive best in a rather heavy loam. The supply of moisture is of great importance, and the soil in which a Fern is growing should never be allowed to become dry. At the same time Messrs. Birkenhead and many other growers find that syringing Fern fronds is to a large extent better avoided; in many cases it is of doubtful benefit, and in some it is positively injurious. Preserve the requisite amount of moisture in the air by damping paths or stages, but beyond an occasional sprinkling to keep the fronds fresh and clean do not syringe them. Such in brief is their practice, and the proof of its suitability is apparent in the condition of the plants.

To enumerate only the best of the species and varieties composing the Sale collection would fill a volume; all the leading genera are strongly represented, and there are some varieties which it would be difficult to find in any garden in England. Those little gems the *Cheilanthes*, *Nothochlaenas*, and *Pellaeas* are especially numerous, and succeed most satisfactorily on a shelf close to the glass in a small lean-to house. These charming little plants are reputedly difficult to grow, but there they appear quite at home, producing their graceful prettily powdered fronds most freely.

They are seldom seen in gardens, chiefly no doubt because there is an impression that they will not succeed; but those who have seen the Sale collection will be inclined to alter any unfavourable opinion that they might have formed. There the plants grow freely, unfurling their charmingly graceful fronds, and soon forming on the shelf devoted to them quite a thicket of growth. An especial favourite is the so-called Lace Fern, *Cheilanthes elegans*, with its finely divided fronds, which needs a rather warmer position than most of the other species, such as *C. Cleve-*

landi, C. Fendleri, C. frigida, C. myriophylla, and C. vestita, which succeed best in an ordinary intermediate Fern house. The *Nothochlænas* are similarly divisible into two classes, the warmer section including *N. chrysophylla*, *N. nivea*, *N. rufa*, and *N. sinuata*; while in the cooler group we have *N. canariensis*, *N. candida*, and *N. lanuginosa*, all pretty species, but little known.

In every house there are numberless attractions—*Adiantums* and *Aspleniums* in abundance, with scores of varieties over which a Fern-lover would go into ecstasies. In addition to the usual tropical Ferns there is a good collection of the best "Filmies," which, like all the others, are in most satisfactory condition. The hardy Ferns are grown in hundreds of thousands, and more vigorous specimens I have never seen in cultivation. The beautiful little Beech and Oak Ferns, everyone's favourites, are very strongly represented; while the most distinct and handsome of the varieties of British Ferns are grown in abundance. Throughout the collection is most interesting, and no horticulturist should visit Manchester without spending an hour or two at Sale.—LEWIS CASTLE.

EXHIBITING CARNATIONS.

IN answer to Mr. Douglas at page 451, I beg to state that my information came in this way. While admiring the stands at some of the Carnation Society's shows, other lookers-on, and apparently without any concealment of their remarks, freely gave expression to their convictions that the majority of the flowers in the small winning stands were not grown and prepared by the exhibitors of them, but that they were obviously the production of a larger and more experienced grower. I am positive of the truth of what I stated—namely, that such "remarks" were prevalent. Beyond that I made no assertion, and I had no other object in asking a question thereon than to "elicit truth." It is open for other exhibitors to make a statement as plainly as Mr. Douglas has done; and his letter I look upon as an invitation, if not a challenge, for them to do so. Can all the great growers say they "never gave nor lent a flower to anyone else to exhibit," nor permitted any flower to appear in other stands than their own? And can they also assert that they have "no knowledge nor reason to suppose that their flowers have appeared in other persons' stands?" Next, can all the winners in the smaller classes state plainly and unequivocally that they "never staged a flower that they did not grow themselves in their own gardens? At present an opinion undoubtedly exists that flowers in both the larger and smaller classes were the products of the same grower. Is this so or is it not? I write for information solely on matters of unquestionable public importance, and which one of the leading officials of the Society asks for in a public manner. I am a deep lover of the flowers in question, and should like to see the removal of every possible impediment to the increase of cultivators and exhibitors. One word more. Personal differences are known to exist between florists, and some readers may suppose that I have some small grievance against someone or other connected with the Society. This is most certainly not so. I have never had the smallest difference with any exhibitor or member of the Society, but I deal with the matter exclusively on its merits as a question of public interest to florists and horticulturists, and as a perfectly proper subject for discussion in the horticultural press.—ONWARDS.

ROYAL HORTICULTURAL SOCIETY.

JUNE 10TH.

PYRETHRUMS and miscellaneous hardy flowers constituted the great attraction at Kensington on Tuesday last, and rarely has a more extensive and beautiful display of these plants been contributed. The conservatory presented a charming appearance, and was thronged with visitors during the afternoon. The majority of the groups will remain on view during this and the following week.

FRUIT COMMITTEE.—Present: Henry Webb, Esq., in the chair; Dr. R. Hogg, H. J. Veitch, H. Burnett, G. Paul, J. Roberts, G. Bunyard, J. Smith, G. T. Miles, S. Lyon, W. Paul, P. Crowley, R. D. Blackmore, and J. Lee. Messrs. Richard Smith & Co. of Worcester sent a seedling dessert Apple resembling the Birmingham Pippin, which was not considered to be of great merit. Mr. George Ashlett, gardener to R. Butler, Esq., Manor Wood, Hatfield, sent a dish of Royal George Peach. Captain Leblanc (gardener, Mr. May), Northau House, Barnet, sent a fruit of Melon Masterpiece, a pretty-looking golden and netted-skinned Melon, which was inferior in flavour in consequence of being too far gone. J. N. Hibbert, Esq. (gardener, Mr. Herrin), Chalfont Park, Gerrard's Cross, sent a seedling Melon Chalfont Favourite, a pleasantly flavoured fruit, but rather thin in the juice. It is peculiar in being a green-flesh with a red lining next the seed. A letter of thanks was awarded. J. Thompson, Esq. (gardener, Mr. Parker), Oakfield, South Edin Park, Beckenham, sent a pair of Cucumbers united by the process of fasciation.

FLORAL COMMITTEE.—Section A.—Present: Thomas Moore, Esq., in the chair; J. Fraser, J. Laing, F. R. Kinghorn, Rev. G. Henslow, H. Williams, J. Doniny, J. Woodbridge, E. Hill, J. O'Brien, H. Ballantine, and Dr. Masters. Section B.—Present: Shirley Hibberd, Esq., in the chair; J. James, W. Bealby, G. F. Wilson, G. Duffield, W. B. Kellock, H. Bennett, H. Cannell, and J. Douglas.

Hardy flowers from Mr. T. S. Ware, Tottenham, formed a beautiful and interesting group, representing a large number of choice useful plants for the outdoor garden. Such displays as this do much to popularise hardy flowers, as no collection is so greatly admired by the visitors; the diversity of colours and forms is surprising to many who have little idea of the abundance there is now to choose from. Irises were well shown in all their numerous shades of blue, purple, yellow, and bronze. Ixias were also in strong force, the shades of rose and crimson being especially beautiful. Very notable were the varieties Glory, bright rose; Lady Slade, soft pink;

Lady of the Lake, crimson; crateroides, rosy crimson; Sarnia's Glory, yellow striped with rose; rosea, of an exceedingly bright rose tint, and the peculiar green viridiflora. The Poppies were attractive, especially the neat-flowered *Papaver nudicaule*, of which two excellent varieties were shown—i.e., *mini-atum*, bright orange-scarlet, and *album*, pure white. Pyrethrums, Aquilegias, and Pansies were largely represented by selected varieties, and amongst other notable plants were the following: The Water Hawthorn, *Aponogeton distachyon*; the yellow Day Lily, *Hemerocallis flava*; the dense dark purplish-blue Bellflower, *Campanula glomerata dahurica*; the pretty Horned Poppy, *Glaucium luteum*; the rich rose-coloured *Lychnis viscaria splendens plena*; the scarlet Larkspur, *Delphinium nudicaule*; *Lilium tenuifolium* and *L. bulbiferum*, the former with neat orange-scarlet flowers, and the latter with larger, paler, orange-tinted blooms; the Golden Columbine, *Aquilegia chrysantha*; the handsome rose-and-white Lady's Slipper, *Cypripedium spectabile*, and the pretty rose-tinted *Allium Ostrowskianum*. In addition there was a large collection of varieties of *Ranunculus asiaticus*, richly and diversely coloured neat little globular flowers of great beauty. The Council awarded a silver-gilt medal for the group, an honour which it well deserved.

Irises formed the principal feature in the collection of hardy flowers from Messrs. Barr & Son, Covent Garden, and a good idea of the beauty of these plants at this time of year from the specimens of the different sections exhibited. The Iris neglecta group includes a large number of varieties, some of the best being Victorine, with purple falls and white standards; Rolandiana, with violet-streaked falls and purple standards; Hannibal, with purple-veined falls and mauve standards. The Spanish Irises with their yellow, bronze, and purple flowers were very striking, one of the best yellow selfs being California. The blue and purple English Irises were similarly beautiful; the curiously coloured *I. squalens* and its varieties furnished another attraction, and *Iris versicolor kermesina*, with crimson purple-veined falls and pale nearly white styles, was charming. *Iris variegata*, *I. aphylla*, and *I. pallida* were also noteworthy in one of the finest collections of early Irises that have ever been shown. Grand blooms of the large *Papaver orientalis maculatus*; Pyrethrums in many varieties, both single and double; Scillas, and other attractive plants, completed this group, for which a bronze Flora medal was awarded.

Handsome groups of Irises, Ixias, Aquilegias, and Stocks were also exhibited by Messrs. J. Veitch & Sons, Chelsea. Both the former included numerous fine varieties. Two English Irises—namely, *Alba grandidissima*, pure white, and Prince of Wales, blue with purple standards, were remarkably good, the Spanish varieties also comprising several notable forms. Hybrid Aquilegias were much admired for their pretty colours and graceful forms; the shades most represented together were white and blue, yellow and white, with yellow and red. The scarlet Brompton Stocks were very handsome, with enormous dense spikes of large brightly coloured flowers; seldom indeed are these fine old plants seen in such perfection, and Messrs. Veitch evidently have an excellent strain of seed. A bronze Flora medal was awarded for the group.

Pyrethrums were superbly shown by Messrs. Kelway & Son, Langport, fourteen boxes being staged, each with sixty blooms of a dozen varieties. The boxes of double varieties were placed at the back, the single varieties occupying the foremost position, where the superior brightness of their colours could be seen to the best advantage. These lovely plants are extremely effective, and now such a diversity of colours has been obtained they should be grown everywhere.

A great number of good varieties were included in this fine collection, but the following are the most distinct under the several colours. It is, however, to be regretted that so many obscure classical names should have been chosen for the plants, as it will militate considerably against their popularity.

Single Varieties.—Magenta and Crimson: Marcius, Rhodus, Aculum, Favorius, Ophias, Rubi, Almanzor, Theodotus, Nero, Menandra, and Genesus. Rose: Abacena, Devona, Nanus, Belarius, Amaryllis, Cerinthus, Babyrsa, Celelates, Sabatium, and Vestatis. Blush: Abderites, Muta, Abarinion, Abradatus, Barkis, Acacisius, and Alexas. White: Marica, Blucium, Sabus, and Nisbola.

Double Varieties.—Crimson: Captain Boyton, J. M. Twerty, Rembrandt, Capt. Nares, Gloire d'Italie, and Galop. Rose: Iveryana, Progress, Duchess of Edinburgh, Marquis of Salisbury, Floribundum plenum, and Ros' Perfection. White: Princess de Metternich, Carneum plenum, Penelope, Mont Blanc, and Niveum plenum. Yellowish: Solfaterre and Cleopatra. Blush: Peach, Mons. Duvivier, Lady Derby, La Vestale, Lady Derby, and Virgo.

In addition some boxes of semi-double Pyrethrums were shown, the centre of the blooms being very full and globular, with an outer row of broad florets much brighter than in the ordinary doubles. Some fine Poppies and Pæonies were also included, and in the opinion of many persons the exhibit merited a higher recognition than the bronze Flora medal awarded for it.

Calceolarias formed a pretty group from Mr. Rapley, gardener to W. Brand, Esq., Bedford Hill House, Balham, the blooms being fine, richly and diversely coloured. Very notable was the handsome yellow self Cloth of Gold, which is remarkable alike for its strong habit, large flowers, and constancy. A bronze Banksian medal was awarded. A vote of thanks was adjudget to Messrs. Hooper & Co., Covent Garden, for a handsome collection of Pæonies and *Lilium Harrisii*, the former flowers being very large and richly coloured.

Amongst the miscellaneous new plants and flowers very notable was a collection of fancy Pansy blooms of the Rainbow strain from Messrs. Cannell & Sons, Swanley. These were extremely beautiful, the predominating colours being blue, purple, maroon, and gold, charmingly varied and combined. A vote of thanks recognised the merit of this exhibit, and a number of fine double tuberous Begonia blooms, the scarlet and rose shades of which were especially good. Messrs. J. Veitch and Sons sent several new plants, of which the most noteworthy were *Weigela hortensis nivea*, a charming white-flowered variety, wonderfully free and early, that will undoubtedly become a great favourite for forcing. With it was shown a dark claret red-coloured form of *Weigela* named Dr. Baillon, which is also very distinct. *Gloxinia Flambeau* is one of the richest scarlet varieties that has yet been obtained, the flowers being of moderate size, but produced in great numbers. *Metrosideros floribunda alba*, a white variety of the well-known beautiful Bottle-brush tree, was

shown by Mr. B. S. Williams, Upper Holloway. The plant was compact in habit, about 3 feet high, and bearing twenty or more long spikes of white flowers. A vote of thanks was awarded for it. Mr. R. Dean, Ealing, sent flowers of a peculiar reddish-coloured *Lathyrus* named Drummondii, something of the fashionable so-called "crushed Strawberry" tint. Mr. Hill, Tring Park Gardens, was awarded a cultural commendation for a well-grown specimen of *Cattleya gigas* with ten flowers, having richly coloured lips much like *C. Sanderiana*. A vote of thanks acknowledged a panicle of *Oncidium Marshallianum giganteum* from G. N. Wyatt, Esq., Lake House, Cheltenham, a grand variety, which was certificated at the recent Manchester Show. It is remarkable for the great size of the lip, which is over 2½ inches broad, the colour being also good.

Votes of thanks were also accorded to J. Gair, Esq., The Kilns, Falkirk, N.B., for a few *Cattleya* and *Dendrobium* flowers; to Mr. J. Stevens, Putney, for flowers of *Abutilon* Lustrous, a rich shining red variety; to Mr. James, Farnham Royal, Slough, for a collection of richly coloured handsome *Calceolaria* flowers, which also were highly commended; to Mr. Woodbridge, The Gardens, Syon House, Brentford, for flowers of *Ornithogalum caudatum*; to Messrs. Paul & Son, Cheshunt, for Tea Rose Souvenir de Thérèse Levet, a bright red fragrant variety of dwarf habit, to J. Leeson, Esq., Crosslands, Furness Abbey, Barrow-in-Furness, for a plant of a seedling *Hydrangea* with large flowers, said to have been obtained from a cross between *Thos. Hogg* and *variegata*; and to Mr. Stacey, Dunmow, for a collection of brilliantly coloured large-flowered *Verbenas*, a most valuable strain for bedding or culture in pots.

First-class certificates were awarded for the following plants:—

Odontoglossum crispum Souvenir de Prince Leopold (Sanders).—A handsome variety, with massive grandly formed flowers 4 inches in diameter; the petals 1½ inch broad, white with a few brown dots on the lip, and a purplish tinge in the sepals. Beautiful as it was, however, we have seen varieties equally as good and better from the same firm. The adoption of such names as the above should also be discouraged by the Committee.

Odontoglossum crispum roseum guttatum (Sanders).—Very distinct, the flowers large and symmetrical, with a rosy purple tinge in sepals, and pale brownish spots. A charming variety, well worth the honour bestowed upon it.

Tuberous Begonia Lucie Lemoine (Cannell).—A neat double variety, with full creamy yellow flowers. Free and compact in habit.

Tuberous Begonia Madame Castaigne (Cannell).—An effective double variety, with massive bright rose-coloured blooms. Very handsome.

Tuberous Begonia Canary Bird (Laing).—A double yellow variety, which was some time ago certificated both at Regent's Park and the Crystal Palace.

Verbena Lord Brooke (Mr. H. Stacey, Dunmore).—A superb variety, with flowers of great size, over half an inch in diameter, and good form, brilliant scarlet, with a white centre. Truss compact, habit free.

Kalmia latifolia major splendens (Veitch).—A fine variety of this well-known shrub, with larger and better-coloured flowers than usual, the buds being quite of a scarlet hue, and the expanded flowers bright red fading to white.

Statice candelabra [S. Suworowi] (J. Carter & Co.).—A second-class certificate was awarded for a *Statice* under the above name, which is the same as that which has been recently exhibited as *Statice Suworowi*, figured in the "Gartenflora," and described in the "Gardeners' Year Book" for 1884. In good condition as it was shown at Manchester this plant is extremely handsome and distinct, with close cylindrical spikes of pale rosy flowers a foot or more in length. In the specimen certificated the spikes were from 6 to 9 inches long, branching at the base. The leaves are coarsely toothed and rather small.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Æcidium Berberidis and *Uredo and Teleuto Spores on Wheat*.—Mr. Plowright sent an interesting communication, giving an account of Schöler's discoveries in 1807, a Dane, who by experiment was convinced that the Barberry blight caused the rust in Wheat, though his conclusions were not accepted by the botanists of the day. Specimens of Wheat were sent showing abundance of *Teleuto* spores (black mildew) after impregnation by *Æcidium*, and others with abundant *Uredo* spores (red rust) from Australia, and not arising from the *Æcidium*. These conditions Mr. Plowright asserts are characteristic of their respective origins. The communication will appear in the *Gardeners' Chronicle*.

Ræstelia lacerata on Hawthorn.—Mr. Plowright also sent specimens of Hawthorn badly infested with this fungus, and which had been artificially produced. He had applied on 24th April the spores of *Podisoma* growing on neighbouring Juniper bushes to the Hawthorn; subsequently the *Spermogonia* appeared, which were followed by the perfect *Ræstelia*. This interprets the supposed "canker" which was sent to the Scientific Committee on a previous occasion.

Tuber-bearing Rootless Cuttings of Solanum Commersonii.—Mr. Burbidge sent specimens of cuttings with a communication describing how they never rooted, with one exception, while the roots in that case sprang from a new shoot out of an axil, but all of which produced tubers from the lowest axils. The foliage had become yellow in every case. The communication will appear in the *Gardeners' Chronicle*.

Plum Attacked by Caterpillars.—Mr. Henslow showed a branch badly infested with *Hypnometra* larvæ.

Wallflower Growing in a Currant Stem.—Mr. Murray reported on this specimen exhibited at the last meeting. He said the pith of the Currant stem had quite decayed away, with the exception of that on the circumference, which had become converted into cork. The stem of the Wallflower, not the root, was only visible in the centre of the pith, and this had produced very little cortex, and had no epidermis. There were very few bark cells. The root must have penetrated to the stem of the Currant below the surface of the earth.

Rubus idæus var. *Leesii*.—Dr. Masters showed specimens of this variety, mostly with single leaves and small inconspicuous flowers. It has been supposed by some to be a hybrid between Raspberry and Strawberry. It is more probably a hybrid between *R. idæus* and *R. cæsius*. The pistil is distorted, but the pollen is perfect.

Bulbous Leeks.—Dr. Masters also exhibited specimens of Leeks with

bulbs. They came up in rows of Leeks sown from ordinary seed, and are probably reversions to the ancestral form.

Pseudolarix Kämpferi.—He also showed dried specimens of the male inflorescence, and cones remarkable for their fleshy or herbaceous scales and glaucous hue.

Malformed Strawberry.—Mr. MacLachlan exhibited specimens of Strawberry plants, in which the leaves and flowers were much distorted. The former had thick fleshy petioles and more or less aborted blades, while the essential organs of the flowers were apparently entirely arrested. Mr. MacLachlan thought it might be due to an acarid, to which *Potentillas* are subject. It was referred to Dr. Masters for examination and report.

Lilies Injured by Frost.—Mr. G. F. Wilson showed some Lily stems, which when 3 feet high were cut down by the frost, the stems being bent, but had since recovered, though they had not blossomed.

Beans Attacked by Weevils, &c.—Mr. Murray described some specimens which had been examined by Mr. Carruthers and himself, and which were found to have galls produced by weevils in the roots as well as Anguiluke. The latter had probably mainly caused the death of the plants.

Begonias with Malformed Essential Organs.—Sir J. D. Hooker showed blossoms some of which had no ovaries, although style and stigmas were present. In others the styles were antheriferous at the base.

Ornithogalum caudatum (?).—A fine plant sent from Syon House for name. It was referred to Kew.

British Orchids.—Mr. Horsefield sent a number of remarkably fine specimens of Orchids from Heytesbury.

Rhododendron fastuosum Malformed.—The Rev. G. Henslow exhibited blossom of a *Rhododendron* showing a tendency to doubling, but in which the pistil was open and flower buds appearing from within. He exhibited similar blossoms from the same bush in 1882, but it bore no flowers in 1883.

"Vegetable Generation" as Conceived in 1758.—He showed a small work by Dr. J. Hill with good plates, in which the author had convinced himself that pollen grains produced germs which crept down tubes in the style and entered the ovular "shells" prepared for them, thus considering the anthers to be female. Linnæus of the same date thought the anthers emitted a "seminal air," which was absorbed by the moisture of the stigma, and remarks that Morilandus believed the pollen to enter the germen; while he says that Needham confirmed his own opinion.—(*Philosophia Botanica*, p. 91 1783.)

GREENHOUSE RHODODENDRONS.

It is surprising that these lovely flowers are not more common. In some gardens we may find a single plant, but not more than two or three. A full collection is rare, and healthy specimens are seldom seen. In fact, altogether I am inclined to think that comparatively few know what floral gems the greenhouse Rhododendrons include. There are no greenhouse plants, not even the *Ericas* and *Azaleas*, so exquisitely beautiful as the Rhododendrons, and when some of the best are in bloom they have an attraction far beyond that which any common plant can command. This is especially the case with such magnificent species and varieties as the Countess of Derby, Countess of Haddington, Jenkinsii, Lady Skelmersdale, Nuttalli, Princess Alice, Taylori, Pink Beauty, Virginala, and many others of the most delicate colours and sweetest odour. Unlike many of the open air varieties, the greenhouse Rhododendrons bloom profusely when quite young and small. Of late we have had some plants of *R. fragrantissimum* and others not more than 15 inches high bearing many fine trusses and splendid blooms, and large specimen plants are lovely when compactly grown and profusely flowered.

There are two ways of growing them successfully—one is to plant them out in beds, the other to keep them in pots or boxes. In all cases the soil in which they are grown should contain a liberal quantity of peat and sand. Good drainage and firm potting must be practised. When making their growth the temperature of any ordinary greenhouse suits them. Water must be applied to them unsparingly both at the root and through the syringe. When the growth is completed and the flower buds formed, a drier temperature with less moisture is best for them. Plants may be taken into the open air in August and September to mature their growth, and shading should not be resorted to at any time. When well developed they are readily forced in the spring months, but they come best when not forced too quickly, and there is no season at which they bloom in such perfection as about Easter. Those who have no knowledge of their culture and would like to try them would not make any mistake by treating them in the same way, and in company with their greenhouse *Azaleas*.—M. M.

POPPYWORKS.

THE Horned Poppies are a very small family of plants, but are none the less interesting on account of their limited numbers. We claim at least one of them as our own. The plants are found on some of our seacoasts, and when seen in their native homes have a very striking appearance. *Glaucium luteum* is covered with a fine glaucous hue, and has dew-like bespangled sea-green leaves, which give the plants a very ornamental appearance. The whole plant abounds in a yellow juice, which is very foetid and possesses poisonous properties. *Glaucium luteum* is an attractive seaside plant. The flowers are very short-lived, but are produced in rapid succession, affording a fine display for a long time. The flowers are succeeded by a large seed pod often a foot in length, having the form of a horn, hence the appellation of Horned Poppy. The plant requires room to develop itself in cultivation, when it often attains the height from 2 to 3 feet. When well grown in the border and

shrubby the plants are very effective. They can also be turned to good account for edging or bedding purposes as white-leaved plants, but to have them dwarf for this purpose the flower stems must be pinched out. *Glaucium fulvum* is much the same in appearance, having somewhat deeper-coloured flowers. *G. Fisheri* is the most attractive from its having much deeper-coloured flowers, nearly approaching an orange colour.

The plants are easily increased by seed sown as soon as ripe. The seedlings appear in the autumn, and flower early in the following season. When sown in spring the plants flower in the autumn. They are also increased by side shoots taken off with a heel, smoothed with a sharp knife, the cuttings being inserted in sandy soil in well-drained pots, and placed in a cool shaded pit or frame. The plants thrive in any ordinary garden soil, but are the better for liberal treatment. They are regarded



Fig. 111.—*Glaucium luteum*.

by some as biennials, but I have had them last for years, and I cannot but regret that they are so seldom seen in cultivation.—V.

SOY BEANS.—The extensive use by the Chinese of this leguminous seed (*Glycine Soja*) is only recently beginning to attract attention. The following is from the proceedings of the Agri-Horticultural Society of India, January 5, 1883:—"The large white Pea is deserving of notice, since it forms the staple of the trade of Changhair or nearly so, to the astonishing amount of ten millions of dollars, or two and a half millions sterling. The Peas are ground in a mill and then pressed in a somewhat complicated, though, as usual in China, a most efficient press, by means of wedges driven under the outer part of the framework with mallets. No description would suffice without a drawing. The oil is used both for eating and burning, more for the latter purpose, however, and the cake packed like large Gloucester cheeses, or small grindstones in circular shape, is distributed throughout China in every direction both as food for pigs and buffaloes, as also for manure." Specimens of the Beans, as well as of the oil and one of the cakes weighing about 60 lbs., may be seen in the Museum of Economic Botany of the Royal Gardens.—(*Kew Report*.)



HARDY FRUIT GARDEN.

Pruning.—Midsummer will soon be here, and in order that the full strong growth which follows it should be turned to good account let arrears of pruning both of lateral and leading spring growth be speedily finished. It is difficult at this busy season of the year to devote enough time to the careful selection of fruiting wood for next year on Peaches and Nectarines, and consequently by far too much wood is often retained and crowded together upon the trees, only to be removed in the winter pruning. This wasteful process cannot be too often deprecated, for the wood which

is eventually retained is neither so strong nor can it bear such fine fruit as it ought. A fruit tree is cultivated solely for its fruit, and therefore no branch or shoot should be retained upon it, or, rather, be allowed to grow at all, if it does not in some way contribute to the desired end. Red and White Currants have now had all the spur growth nipped off to two or three leaves, the leading growth shortened, and if against wall or trellis at once fastened to it. If this is not promptly done many leading shoots are liable to be broken off by the first storm, to the disfigurement of the tree and the loss of the year's growth.

The Fruit.—Thin all crowded fruit of Peaches, Nectarines, and Apricots without further loss of time if it is not yet done. Especial care should be given to thinning clusters of Pears on all wall trees, the finest fruit being invariably produced by them. Do not, however, thin till the fruit is set and swelling, so that you may be able to see clearly whether thinning is or is not necessary. The Fig crop is so abundant that care must be taken to loosen the branches nailed or tied closely to wall or trellis, or much fruit will be spoilt by growing to instead of from the wall, and being pressed and deformed between and behind branches. Gooseberries used while green should be picked from the lower branches, and where they are left upon that part of the bush to ripen, drooping branches should be raised upon supports high enough to keep the fruit clean. Strawberries ought now to have litter or supports to keep the fruit from contact with the soil and from becoming splashed with it by heavy rain. Tiles or pebbles are best for laying under the fruit, because it is not apt then to spoil quickly in wet weather. Reeds and straw are the next best materials provided the straw is fresh, clean, and not saturated by anything offensive. Long grass answers well in dry weather, but in a wet summer fruit both ripe and green soon decays if resting upon it.

FRUIT-FORCING.

Figs.—Figs in Pots.—These as generally seen do not last long in bearing, nor produce a great number of fruits at one time, but when they have attained a height of 6 or 8 feet, and thoroughly established in pots of 18 inches or more in diameter, they then give a harvest of fruit of a very satisfactory character. At the present time the succession crop on the November-started trees will be swelling fast, and some of the most forward are ripening. In order to increase the size of the fruits the spring growths, which will in most cases be profusely set with fruit, and should be given a good thinning, and those ripening will be fine in flavour, according to the light, heat, and ventilation they receive. Throughout the growing season liberal feeding is absolutely essential, and the quantity that trees of the size above indicated will take is enormous, or from 4 to 6 gallons every alternate day. The liquid not only feeds the roots, but the ammonia arising therefrom, along with the copious syringing, keeps the foliage in a clean healthy state, free from insects, and the fruit does not fall prematurely. Should red spider appear syringe with clear sulphur water, but not until late in the afternoon or evening.

Fig Trees Planted Out.—Trees in inside borders and trained over a fixed trellis should have the shoots tied down before the crop begins to ripen, and vigorous growths that are likely to take support away from the fruit should be pinched out as the tying proceeds. Make additions to the mulchings as the roots appear on the surface, and seek to keep them there by watering at short intervals, once a week at least. Ventilate all houses early in the morning, allowing the temperature to rise gradually to 80°, keeping it at that to 85° through the day from sun heat, and reduce the ventilation gradually, closing on fine afternoons sufficiently early to allow of the sun raising the temperature to 85° or 90°.

Early-planted Trees.—When syringing can be resumed in the house from the first crop of fruit being gathered, the trees should have a thorough cleansing to free them from insects and dust, than which nothing is better than the garden engine. If scale has obtained a hold syringe with petroleum, a fluid ounce to three gallons of water, kept sharply stirred whilst being applied. Attend to stopping and tying, avoid laying in too much wood, and let ripening fruit have full exposure to light.

Cherry House.—In the case of trees that have only been slightly forced the fruit will now be ripe, forming a good succession to those that were ripe in May, and it will be necessary to see that the trees do not lack moisture at the roots. Water must be carefully kept from the fruit, but a fair amount of moisture should be maintained by damping the borders occasionally, and will not do any harm provided the house is subjected to free ventilation. In order to maintain a supply until those on walls come in, the house should be shaded whenever powerful sun prevails, and birds must be excluded by some netting fixed over the ventilators. The house should be fully ventilated at this season. Trees from which the fruit has been gathered should be syringed to dislodge dust or insects, and the house fumigated on two or three consecutive evenings if black aphides appear. See that there is no deficiency of moisture at the roots, as it is important the soil be kept thoroughly moist.

PINES.—At this season young growing stocks will need particular attention in order to keep the plants sturdy and vigorous, for which purpose it is advisable to divide them into two or three sections, as it is otherwise impracticable to do full justice to all the sorts under ordinary arrangements where the plants are mingled together, under which, for the sake of appearance, the stronger growers are placed at the back, and consequently best position, whilst the smaller are placed in the front or worst. Where practicable we advise the Queen plants to be grown by themselves, and Smooth Cayenne and Charlotte Rothschild together. The taller varieties, such as Black Jamaica, Enville, Black Prince, Montserrat, and Prince Albert, &c., should be placed together. Every care

should be taken to make the most of the sun heat, and, except for the sake of bottom heat, but little artificial warmth will now be required. The bottom heat should be kept steady at 90°, which is absolutely essential to keep Queens in satisfactory progress, and with a proper degree of heat at the roots an occasional low night temperature will not affect the growth prejudicially. A night temperature of 70° is suitable. Ventilate early in the morning or at 80°, and keep at 85° to 95° through the day from sun heat, closing at 85° to 90° with sun heat, and if the temperature rise 10° afterwards it will be more advantageous than otherwise. Keep the houses when closed well moistened, and sprinkle the plants two or three times a week according to the state of the weather. Water the plants regularly and copiously, but not until it is needed. It should be tepid, with the addition of 1 oz. of guano or soot to each gallon.

The night temperature in the fruiting department should be maintained at 75°. Admit air freely on all favourable occasions, as a close atmosphere is apt to increase the crowns out of all proportion to the fruit. Plants with fruit approaching ripening and close to the glass will be benefited by being slightly shaded for an hour or two at midday, and with the heat duly maintained a liberal course of ventilation will at this stage aid perfection in point of colour and quality. As soon as a fruit ripens it should be cut and removed to cooler quarters if it is to be kept.

PLANT HOUSES.

Clematis.—Plants of the early-flowering varieties that have been grown in pots and trained upon trellises should, if they have been gradually and carefully hardened, be placed outside. When first placed out they should be stood in some sheltered position, where they will be screened from cold winds until they can be plunged in the position they are intended to occupy during the summer. After these plants are placed outside they must not be neglected; the shoots as they extend should be kept tied round the trellis, and the plants well watered and liberally supplied with stimulants.

To save labour in watering it is a good plan to plunge their pots in ashes and mulch the surface of the soil with decayed manure. The large-flowering types in the conservatory will also do outside as soon as they have done flowering. Young plants growing on in the greenhouse should have their shoots as they extend trained to thin cord. These plants should be repotted if they need it, employing a compost of good loam, a seventh of manure, and a little sand.

Callas.—The stock intended for next autumn and winter flowering have now been hardened in a sheltered position outside, and should be planted out for the summer months. If necessary to increase the stock the plants may be divided as the work of planting proceeds. In planting, form a trench and incorporate a liberal quantity of decayed manure amongst the soil to be placed round their roots. When planting is completed the soil should be about 2 inches below the surface of the ground, so that liberal supplies of water can be given during dry weather, which is all the attention needed until they require lifting in September.

Choisya ternata.—Bushy young plants in 5-inch pots, or old plants that have been cut back and well broken into growth, should be hardened thoroughly by removing the lights from the frame in which they are growing, if not already hardened, for placing them outside. Select a sunny position, for they will do much better outside during summer and set their flower beds with greater freedom than if grown indoors. These plants require abundance of water. When the pots are full of roots liberal feeding may be resorted to.

THE BEE-KEEPER.

SEASONABLE NOTES ON BEES.

THE merry month of May, so far as the bee-keeper was concerned, did not merit its fair appellation. Rainless for the most part, and with the wind constantly in the east, hives were much retarded by the cold and even frosty nights and by the almost total absence of honey in the daytime. Dry weather generally gives much honey, and moist weather is productive of swarms; but cold parching weather, such as we have lately been experiencing, brings neither. In some very favoured spots where Mustard and early Beans are abundantly grown honey has doubtless been obtained in some quantity, and has already found its way to the Health Exhibition; but where fruit blossom is depended on as the principal source of income for the spring months the yield has been indeed very small.

The early days of the present month brought a change of wind. The genial westerly breezes and warmer nights at once caused a flow of honey, and several racks of sections were taken possession of by our bees. The long-hoped-for rain came at last on the 4th inst., and we looked forward to warm sunshine after it and quickly filled supers. But the sun god has been affronted, and refuses to smile again. Cloudy skies and very cold nights again prevail, and we expect to see our sections soon deserted and the bright hopes so lately formed as suddenly dispersed. The Sycamores and other honey-yielding trees and

shrubs will have shed their blossoms. It is a sad experience that bee-keepers soon learn, how quickly the wet and cold causes the various series of honey flowers to pass away. A few cold cloudy days and the blossoms expand and fall—gone for a whole season, without having contributed one drop of nectar to our imprisoned labourers. It is very disheartening to see the tens of thousands clustering for warmth; the labourers indeed very many, but the harvest nil. But just as the first warm breath from the south and the genial influence of returning sunshine will at once awaken into noisy rushing life the now listless myriads, even so, rise the bee-keeper's hopes, and again and again he looks forward to a busy joyous harvest.

Laurels have again been noticed by us to be one of the very best shrubs to plant for bees. Too many cannot be had near an apiary. Bees obtain much honey from them, principally collecting it from the axils of the leafstalks. It seems to exude from the plant and not to be a honeydew, the secretion of insects. The American Blackberries are now coming into flower, and, like the Raspberry, should weather permit, yield a bountiful supply. The fruit of these is delicious, and it is a pity that more are not grown by bee-keepers. They require deep rich soil, and cannot be too highly manured. Trained like the Raspberry to strained wires, or arched from stake to stake, they bear an abundance of bloom; and where bees have access to them the fruit is certain to be finer, every berry being perfectly fertilised. It is a pity that more attention is not paid by the owners of hives to planting such trees and shrubs near their bees as shall give occupation to their little favourites in the intervals between cloud and sunshine. We learn that Messrs. Sutton and Sons of Reading are about to ascertain the best kinds of seeds to sow for bees, to supply them in cheap packets. This will be a decided boon to bee-keepers. We last year mentioned Radishes as a fertile source of honey supply. If bee-keepers will allow a few plants to run to seed they will be surprised at the number of bees constantly working on the flowers. The golden Tom Thumb Wallflower has been much appreciated by our little workers, and but for the drought would have lasted much longer in blossom.

Stocks of bees should now be at their full strength, and supers should be put on in the nick of time. With abundance of bees and quantities of honey coming in, which must be the case when the rain has given a new stimulus to the honey-yielding flowers, supers will readily be entered. We are now obtaining sections from the body of the hive. Bees more readily commence drawing out the foundation there when the supply of honey is not great from without. These sections if not quickly finished below, should a glut of honey begin, will be moved to the racks above.

Swarms are common around us, but we are doing our best to prevent swarms this season, and so far we have succeeded. Our best time for increasing stocks is during the interval between the early yield and the Heather harvest. We wish to employ all our bees now in filling early supers. We then have time to build up stocks and swarms before the Heather is in full swing.

Several contributions have lately appeared in the Journal concerning the merits of black bees *versus* Ligurians. We have not been able to speak pointedly on this subject, because, although we have for many years had Ligurian blood in our apiary, we have never taken the trouble to keep it pure. Our Ligurians have soon become crossed with the black bees, if there is such a thing as a single stock of the old black race in existence. We much doubt it. Our own experience has been in favour of the hybrids. Our strongest stock at the present time is a crossed one, and there is every reason to hope that they will yield as heavy a surplus of honey as any stock we possess. We hope to be able to compare them late in the year with the seventeen other colonies in our possession. They are certainly rather more irritable than the ordinary English bees, although the pure Ligurians are much more docile. They are also without doubt more active than the natives, both earlier in the morning and later in the evening being abroad water-carrying. More fussy, perhaps some will say; Better nurses, say we. Their breeding propensities are certainly very great. By confining them to ten frames for brood-rearing, we, however, hope to utilise the powers of the vast army of foragers should opportunity offer.—P. H. P.

FERTILE WORKERS.

MR. JOHN HEWITT, Sheffield (page 433) draws my attention to his article in the *British Bee Journal* for June 15th, 1883, narrating his interesting experiment with black queen amongst Syrian workers, amongst the latter being a fertile worker that laid eggs contemporaneous with the queen. He then adds, "I believe I was the first to

discover or satisfactorily settle this interesting and valuable fact." While I am both interested and pleased to see Mr. Hewitt making and recording these accurate observations, I cannot corroborate the statement that he was the first to discover the phenomenon. The late Mr. T. W. Woodbury gave his evidence in this Journal of a case where eggs were laid in a hive that produced drones where a young unfertilised queen was. I am not sure, however, whether Mr. Woodbury attributed these eggs to fertile workers or to the queen. About that same time he had a Ligurian queen fertilised with a drone from a fertile worker, which I could fully endorse, as I had and knew of several parallel cases. Both before and after that date I had given the subject much attention as well as making many experiments. These proved how easy it was to raise at will fertile workers, and how difficult it was in some cases to introduce a queen to bees where they were while it was quite the reverse in others, so that my experiments do not warrant me to introduce a queen or expect it to be well received in any hive containing a fertile worker. In every case where a fertile worker is present to insure its deposition I join other strange bees to it, which in many cases I believe these stranger bees belonging to the queen to be introduced kill the fertile worker and make the bees passive and in a proper state to fraternise with the alien queen.

In consequence of ill health Mr. Hewitt's article in the *British Bee Journal* had escaped my notice until I read his remarks, page 433, when I turned up the pile since January, 1883. Many people were, and are still, sceptical as to the existence of fertile workers, and many hold erroneous opinions regarding their reproduction. One interesting case I had was that in a queenless hive I had inserted a piece of comb containing larvæ and eggs, as they ate out all eggs and larvæ except one, which was hatched on the tenth day after sealing. This was a Ligurian, and the only one in the hive which commenced laying the same day she was hatched. I watched her depositing eggs and receiving court from the other workers, showing her to many bee-keepers, and had her placed in an observatory hive; but an accident that befell her prevented me exhibiting her publicly at the Caledonian Apian Show in 1876.

With the view of proving whether the advice so often given was correct to shake the bees out some distance from its stand, and the bees would return, but if a fertile worker was present she would not. I tried this often, but the fertile worker always returned. In 1881 I had a Cyprian hive that raised upwards of 200 queens and many fertile workers. Many of these queens took shelter in adjoining hives which ejected as many as from six to a dozen; in others where only one had entered I found living along with a queen regnant at the end of two months. The fertile workers or rather in hives where fertile workers were present, the young queens were deposed, but with the many queens on hand I made up the loss, though I could not always depend on them being well received. What appeared to be successful in one case failed in another. Although I am satisfied that queens will at times be well received in hives containing a fertile worker, but not always, I advise where these pests are present, Do not risk the life of a valuable queen without taking precautionary measures.

While I do not doubt the accuracy of Mr. Hewitt's article and experiments, still there is a possibility of mistake. The yellow bees are so well distributed throughout Britain that it is difficult to say where a pure black bee is to be found, and it is because of these crosses being superior workers, and bee-keepers not knowing them to be other than pure blacks, that many believe the black bees are the best. The progeny of crossed queens are very interesting and various in their markings. I have had crosses with different races that not more than one in a hundred of the workers showed the markings of the drone's parentage, contrary to what is usually the case, where as a rule the one half partakes of the markings of queen and the other half that of the drone; yet, singular to say, I have seen the drone progeny of queens raised from the eggs of these crossed black queens that showed so little of the yellow blood extra prettily marked. This is where a half-breed queen might be mistaken for a pure one. Then some queens when they commence at first to lay, and for some time after, lay drone eggs only, and others have always a mixture of drones, while others produce great numbers of hermaphrodites; such queens are apt to mislead novices, and should be destroyed, as they never prove profitable. Persons wishing to repeat Mr. Hewitt's experiments should make sure that the queen chosen is not only of a distinct breed but that she is of undoubted purity.

Mr. Hewitt will, I trust, be satisfied from the foregoing that I have not used any of his articles for my own purposes, while I may further tell him that queens in workers cells were found by me thirty years ago, and if I remember aright I mentioned the facts stated in an essay written in 1882. It is by such experimenters as Mr. Hewitt that discoveries are made, and on such only can reliance be placed. I am proud to see him watching what he considers his rights and exposing imposition and what is wrong, but we know that

much claimed during the past ten years was made fully known in the pages of this Journal long ago.—A LANARKSHIRE BEE-KEEPER.

TRADE CATALOGUE RECEIVED.

Pringle & Horsford, Charlotte, Vermont, U.S.A.—List of Hardy North American Plants.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Wild Flowers (J. S.).—Besides the work you name you will find the "Handbook of British Plants" useful, which may be had from this office, price 3s. 6d., post free 3s. 8d.

Cattleya Mossiae (C. D.).—The variety is a very handsome one, and superior to many of the common forms in cultivation.

Grapes not Swelling (G.).—It is extremely improbable that the small berries will ever approach the size of the others, and the better plan would be to remove them if there are sufficient swelling freely to produce fairly full, if even rather small bunches. We cannot understand persons ceasing firing at any particular period of the year regardless of the state of the weather, except on compulsion, such as having no fuel. We scarcely think, however, that "cutting off the fire" was the sole cause of the Grapes not swelling. The chief cause we attribute to imperfect fertilisation, and the evil was increased by the subsequent chill that was imparted by a too low temperature.

Peach Leaves Blistered (W. H.).—The leaves you have sent are seriously attacked with the fungus *Ascomyces deformans*, which quite destroys the tissue, and occasionally almost destroys the trees. There is no simple remedy, and you cannot do better than remove all the worst leaves and hope for genial weather to promote free growth. The fungus is invariably the most prevalent during cold weather, when the trees received a chill and the sap is comparatively stagnant. Seriously blistered leaves are rarely seen under glass, and when the trees are effectively protected from cutting winds in spring. The subject is illustrated on page 519, vol. iv., third series, of this Journal, the issue of June 22nd, 1882.

Thrips on Vines (A Devon Gardener).—Fumigation intelligently performed will not injure Grapes when freely swelling after having been thinned. Tobacco smoke will destroy thrips, but not the eggs of the insects, and consequently the application must be repeated in the course of ten days, fumigating on two consecutive evenings in each case. If the first attacks are seen on a few leaves only, these may be quickly sponged, using any approved insecticide, and the thrips thus prevented invading the Vines. Nicotine soap, Fir-tree oil, or Gishurst compound applied through a spray-distributor will destroy thrips on the under-sides of the leaves, the upper surfaces, which are often attacked, not being easily reached by the solution from either a spray-distributor or syringe.

Indoor Fernery (A Constant Subscriber).—The wood that has been used for supporting the Ferns on the back wall of the fernery must have been very unsuitable for the purpose, or it would not have decayed so soon. Only the hardest wood should be used, the best of all being the hard, black, ebony-like roots of Oak trees. Stone is, of course, the most durable, and rustic pockets can be formed with cement, which are practically imperishable. Many walls are ornamentally covered with Ferns and Begonias by affixing very strong wire netting to studs, leaving a space of 2 or 3 inches between the wires and the wall. If rough soil is packed in, faced with moss, and the whole kept moist, various plants will luxuriate, and a very attractive surface be produced. If Oak is not obtainable Teak will be suitable.

Crocuses (Bodfare).—It is certainly wrong to "tear the grass from Crocuses while it is green, and pull up the bulbs with it." If such a practice is systematically pursued the Crocuses cannot fail to decrease and become weaker yearly. The grass should remain until it can be removed with the greatest ease without even breaking above the ground or disturbing the corms in the slightest. When quite matured it parts readily and naturally from the roots, and no more force is needed for withdrawing it than could be applied by a child a year old. If the withering leaves are not deemed unsightly they may remain until they can be cleared off with a fine-toothed rake.

The Shamrock (R. B.).—*Oxalis acetosella*, the Common Wood Sorrel, or Shamrock, is a native of the moist shady woods of this country, Europe, and

North America, and is one of the most elegant of wild flowers. It delights in retired shady woods, groves, and hedges, and flowers in April and May. It was called by the old herbalists Alleluja, and Cuckoo's Meat, because, as Gerard says, "when it springeth forth, the cuckoo singeth most; at which time also Alleluja was wont to be sung in our churches." But Alleluja is merely a corruption of the Calabrian name Juliola. The whole plant has a grateful acid taste, much more so than the common Sorrel, and is on that account used in salads and in saucers. In Lapland it is so plentiful that Linnaeus says the inhabitants of that country take scarcely any other vegetable food than Sorrel and Angelica. The expressed juice of the plant is employed to remove spots and iron-moulds from linen, and this it does by the great quantity of binxalate of potassa which it contains. Twenty pounds of the fresh leaves have been found to yield 6 lbs. of juice, from which 2 ozs. 2 drachms, and 1 scruple of salt, besides 2 ozs. and 6 drachms of an impure saline mass are obtained, and is sold under the name of salt of sorrel and essential salt of lemons. It is prepared in Switzerland and Germany from different species of *Oxalis* and *Rumex*.

Cutting-down Yew Hedge (G. V.).—We once had a similar hedge to deal with, and cut it partially down at first, but, as we anticipated, this did not answer. We then cut off the branches close to the stems of the trees, for stunted trees they really were, removed the old soil from the roots, thoroughly saturated the dry ground, added fresh soil, with a surfacing of rich manure. Fresh growths were then produced from the stems and a healthy hedge formed. Whether your hedge is too much exhausted for renovation we have no means of knowing, but we are convinced it will not be improved by the "half-shortening" you suggest as the alternate plan.

Pruning Plum Trees (Idem).—Plums do not bear on young wood with the same freedom as Peaches do, nevertheless they will bear on short-jointed well-matured shoots of the previous year's growth. It is very easy to err, however, in securing too many of these to the wall, thus overcrowding the foliage, which is a sure way to prevent the formation of blossom buds. The trees bear admirably on spurs and on hard stubby shoots from 4 to 6 inches in length, that never fail to form on our trees when the stronger growths are pinched. There is no objection whatever to securing some of the young growths to the wall when there is ample room between the main branches for the leaves to develop without overlapping those on the spurs. Subject to the careful avoidance of overcrowding, the combination of young wood and spurs may with safety be adopted, as this system properly carried out is productive of good crops of fruit. The precise method to adopt, however, depends on the condition of the trees. We have trees in the most satisfactory bearing state that are managed on the spur system exclusively, and others, with which we find it advantageous to lay in some young wood annually, removing unfruitful portions at the winter pruning; in fact, many are removed in the summer, but an experienced eye is requisite for determining which to remove and which retain.

Various (Cambridge).—We cannot understand your failure to obtain seed of the Virginian Tobacco from any of the firms you name, except on the assumption that you did not apply soon enough. We find it in the catalogue of Messrs. Carter & Co., and also under the exact names we gave in that of Messrs. Veitch & Sons of Chelsea, and we shall be surprised if it is not procurable from the principal seed firm in the town near which you reside. We are not able to state whence you can obtain plants, as we know of no nurserymen who raise them for sale. We have, however, written to a gardener who grows Tobacco for fumigating, and if he has any surplus plants he will send you a few. This is all we can do in the matter. It is, for obvious reasons, contrary to our established rule to recommend the seeds of any particular dealer as the "best;" and as you wish to have the "very best strain" that is procurable of the flowers you name, your only certain course of succeeding is to procure a packet of seed from each of those dealers who offer special strains, select the best flowers from the whole of them, and from those save seed. By no other means can you secure the "very best strain," as flowers equally good are obtained from the seed of the different growers who pay special attention in the selection of varieties for producing it. We will endeavour to procure you the information you need for your carpet bed. You have deferred your request, however, so long as to render it impossible for us to state this week whether we should succeed or not in our desire to assist you in the matter.

Culture of Abutilons (South Wilts).—Your plants have either been kept too cold, or they have not had the support they need for keeping them healthy. Some time ago a successful cultivator of these plants wrote as follows:—To grow Abutilons for producing flowers in large quantities they should be planted out against a pillar, rafter, or where they can cover a wall. Standards grown in large pots or tubs are also very effective in large conservatories. These plants flower almost the whole year if properly and liberally treated. When plants have attained a fair size in either pots or tubs they require liberal feeding and rich top-dressings frequently to keep them healthy, otherwise the foliage turns sickly, the wood becomes hard, and the flowers are few in number. Plants can also be flowered well in 4 and 5-inch pots. They thrive well under greenhouse and cool-frame treatment during the summer months, but will not flourish so well in the greenhouse during winter as in a house that is kept a little warmer. They do fairly well in conservatories where the temperature is not allowed to fall below 45° by night; but better, and continue to grow and flower with greater freedom, in an intermediate house where the temperature is maintained between 50° and 55°, according to external conditions. To maintain a succession during winter and spring two batches should be propagated—one in July, and the other towards the end of August or early in September. It is useless to propagate for this purpose earlier, as the plants only become tall. The cuttings should be inserted in thumb pots, as every one will root if placed in close handlights in Cucumber and Melon houses, and kept shaded from strong sun. As soon as the young plants are rooted they must be gradually accustomed to cool treatment; in fact, we generally have ours in a cold frame by the time they are ready for 4 or 5-inch pots, and the only shift the plants get after they have filled the small pots in which they are rooted. This batch we grow in cold frames as long as the weather will allow us to do so without checking the plants. Growth from the time of rooting is slow, and the plants are sturdy and strong with fine foliage down to the rims of the pots. We give preference to good strong cuttings, such

as can be obtained by removing the ends of leading shoots, and then the plants are well furnished from the commencement. They seldom lose their foliage in the operation of rooting if judiciously treated. While growing Abutilons must not suffer by the want of water, and when the pots are full of roots liberal feeding must be resorted to. Stimulants should be given every time watering is necessary, by which means the plants are kept in a healthy vigorous condition. Good loam, to which is added one-seventh of manure, with sufficient sand to keep the whole porous, will grow them well. If this reply does not meet your requirements please write again, and describe the conditions under which your plants are grown.

Cucumbers Diseased (G. B.).—If your plants are affected with what is known as the "fruit form" of the "disease," we fear you will find it difficult to extirpate. Mr. Taylor succeeded in banishing it from Longleat by what he termed "isolation." Plants were raised and grown in an old house quite away from those in which the disease was rife; the attendant had his separate waterpots, &c.; he procured water from a different source, and had nothing to do with the houses where the diseased plants were. The first isolated stock of plants did very well, and we started another lot for the summer on a dung bed. This was also kept isolated from the Cucumber house proper with the same result. The house in which the diseased plants had been growing was fumigated with sulphur, every part that could be reached was scalded with boiling water, the walls were limewashed, the woodwork painted, and the house remained clear of Cucumbers for four or five months, during which time no disease was seen on the place. The result was plants in full bearing in the most perfect condition." Another correspondent, Mr. T. Weaver, wrote on this subject last year. "I had some experience with this much-dreaded pest a few years ago in a garden where Cucumbers were in great demand. It was then August, and every probable remedy had been tried that could be thought of—viz., new soils and fresh seed obtained from a source where there was no Cucumber disease; but the results were that as soon as the first fruits were seen the disease appeared. Cucumbers were, however, wanted winter and summer, so after trying all remedies by day we determined to begin by night. Fumigating with tobacco paper three nights in succession was tried, the atmosphere being kept drier and the temperature higher. After three or four nights fumigating was again tried. This treatment was carried on for about three weeks. The plants were then carefully examined, and all spotted leaves and gummed fruits removed, a top-dressing of fresh soil being applied. The result was that the plants started growing freely, and produced a very fair crop of fruit for Christmas and on till February, quite free from spot or gum. After that I always kept a sharp look-out for the first spot, and if any was seen the fumigator was placed in the house two hours after dark. The two following seasons Cucumbers were cut by hundreds without a spot. I feel sure if your correspondent will try the above cure next season he will not suffer from this troublesome pest. I may add that I have not seen any traces of it for over three years." The "correspondent" alluded to was Mr. Harding of Orton Hall, who had to battle with the disease in its most inveterate form. He found that raising the temperature of the house 10° had a beneficial effect. We believe his plants are now clean, and we shall be glad if he will state to what he mainly attributes the banishment of the disease.

Names of Insects (R. C., Sevenoaks).—Your No. 1 is a beetle, one of those called rove or cocktail beetles, *Staphylinus fuscus*. In habit they are predatory, and remarkable for their very short wing cases; though possessing wings, they rarely fly. No. 2 is one of the tiger beetles, *Cincindila campestris*. These are insects of rapid flight by day; the larvæ or grubs excavate holes in sandy places, into which they drag and devour such smaller insects as they can secure. The other specimen, No. 3, is the larva, seemingly, of *Agriotes linearis*, another beetle, and a species which is occasionally found about gardens; the larva is a subterranean feeder, but does not cause any serious damage to plants. Such is, however, caused by the wireworms of the genus *Elatér*; and the insect, of which you add a description, is probably one of these, though we cannot speak positively.

Names of Plants (G. R. and J. S. B.).—The Whitebeam, *Pyrus Aria* (J. W., Essex).—1, *Sedum carneum variegatum*; 2, *Diplacus glutinosus*. Both are greenhouse plants, but the former will grow well out of doors in the summer months. (L. W.).—The Laburnum is *Cytisus Adami*, concerning which some information was given last week. The other is *Mespilus Smithi*, or Smith's Medlar. The specimen sent this time was a much better one than the last, and we are in consequence enabled to give you the correct name. (J. J., Lancashire).—1, *Pescatorea bella*; 2, *Dendrobium crassinode*; 3, *Oncidium carthaginense*. (G. W. C.).—The white-flowered Orchid is *Dendrobium mesochlorum*. (W. J., Doncaster).—1, *Linaria Cymbalaria*; 2, *Corydalis lutea*; 3, *Cornus mascula variegata*; 4, *Asphodelus luteus*; 5, *Saxifraga granulata flore-pleno*. (R. A. P.).—*Negundo fraxinifolium*.

Honeycomb in Sections (J. S.).—From the fact of your queens being two years old it is almost impossible to prevent swarming. Young queens with large breeding space are the only sure means to prevent swarming. If your straw hives have less breeding space than from 1600 to 1800 superficial inches double side comb they are too small, and should be eked to that size, then the sections placed as supers, tiered one above another in crates, keeping the bees constantly at work by adding an additional tier as the previous one is well begun. If the frame hives are too small place a crate filled with frames above the stock. The outer frames of this crate should be for sections, but you would find more satisfaction and profit were you to swarm the hive (as swarms always work more eagerly than non-swarmers), and double or join two swarms together, then when two-thirds filled with comb add supers or sections. We shall shortly publish notes that will be useful to you, and apiarian articles will appear from time to time equal in interest and possessing at least the same practical value as any that have appeared in the past. You will not find anything of the same nature in the other paper to which you allude. We are obliged by your letter.

COVENT GARDEN MARKET.—JUNE 11TH.

BUSINESS somewhat improved, with no alteration in prices.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples ½ sieve	1 6	to 5 0	Oranges 100	6 0	to 10 0
Chestnuts bushel	0 0	0 0	Peaches per doz.	6 0	12 0
Figs dozen	4 0	6 0	Pears, kitchen dozen	1 0	1 6
Filberts lb.	0 0	0 0	„ dessert dozen	1 0	5 0
Cobs per lb.	1 3	1 6	Pine Apples English .. lb.	2 0	3 0
Grapes lb.	2 0	5 0	Strawberries lb.	2 0	6 0
Lemon case	15 0	21 0	St. Michael Pines .. each	2 0	6 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes dozen	2 0	to 4 0	Mushrooms punnet	0 1	to 1 6
Beans, Kidney lb.	1 0	0 0	Mustard and Cress punnet	0 2	0 0
Beet, Red dozen	1 0	2 0	Onions bushel	2 6	3 0
Broccoli bundle	0 9	1 0	Parsley .. dozen bunches	2 0	3 0
Brussels Sprouts .. ½ sieve	0 0	0 0	Parsnips dozen	1 0	2 0
Cabbage dozen	0 6	1 0	Potatoes cwt.	4 0	5 0
Capicnams 100	1 6	2 0	„ Kidney cwt.	4 0	5 0
Carrots bunch	0 3	0 4	„ New cwt.	8 0	14 0
Cauliflowers dozen	2 0	3 0	Rhubarb bundle	0 4	0 0
Celery bundle	1 6	2 0	Salsafy bundle	1 0	0 6
Coleworts doz. bunches	2 0	4 0	Scorzonera bundle	1 6	0 6
Cucumbers each	0 3	0 6	Shallots lb.	0 3	0 6
Endive dozen	1 0	2 0	Spinach bushel	1 0	2 0
Herbs bunch	0 2	0 0	Tomatoes lb.	1 0	0 0
Leeks bunch	0 3	0 4	Turnips bunch	0 3	0 0
Lettuce dozen	1 0	1 6	„ New bunch	1 0	0 0



ARABLE AND PASTURE FARMING.

(Continued from page 458.)

THE best pasture lands are frequently much depreciated when occupied by inexperienced tenants, or even by home farmers who are employed in districts with which they are totally unacquainted. This is especially the case in such large enclosures as are met with in Buckinghamshire, and more particularly in the Vale of Aylesbury, where many valuable pastures contain large acreages, and the soil consequently varies much in quality as well as the grass produced thereon. In consequence these hillocks of various dimensions, although they are necessarily fed off by fattening bullocks, contribute but little towards fattening the stock. As they cannot be separated, however, it is of the highest importance that they should be raised in value as nearly as possible equal to that of the best portions. This will be best done with applications of earth and dung composts laid out in alternate seasons with 4 or 5 cwt. per acre of the best bone superphosphate, the latter being applied in February of the year succeeding that of the compost manure, and thus continued alternately until the desired improvement is secured. We are now referring to those best pastures whereon the cattle never receive cake or artificial feeding mixtures of any kind, and yet become prime beef by summer feeding. Even portions of such fields we have noticed that the Clovers have entirely disappeared, probably from sheep feeding combined with oxen. It is sometimes conjectured that portions of these pastures are too wet, which destroys the Clover; but let it be remembered there is one infallible rule to be observed, that in case no rushes appear it is certain that the land is not too wet for growing land; and were it drained it would cause irreparable injury, for we have seen strong land pastures after being drained reduced more than half their original value, as in the summer season the land would become open, the pastures would then for months prove absolutely sterile. Again, portions of such land are often injured by hassocks of coarse grass or the bunch rushes. In either case the remedy is to cut up with the turf-cutter and burn them into ashes, and then sow Cocksfoot Grass and White Clover seeds, spreading the ashes and compost manures over the surface. This will reclaim any such land which has deteriorated through neglect. These improvements are essential, because we are now dealing with grass land which lets at a high rental and should be made available for bullock-fattening without artificial food, because it is this alone which can justify a high rental. On such land the labour question ought to be reduced to the lowest possible amount; an instance and illustration of which we can give, as the late Mr. James Crew of Wincanton, Somerset, bought two North Devon bullocks just beneath the butcher's quality at the Christmas market at Salisbury for £32 each, placed them in his feeding pastures in the Vale of Wincanton, and by grazing on the land in summer and consuming hay in the winter the produce of the adjoining pasture had only a hovel or shed to lie in, but without receiving any other food than the produce of the pasture either in grass or hay, were fattened and sold at the next year's Christmas market at Salisbury

for £64 each. This is an instance of the value of grazing cattle well worth the attention of every farmer who has the best grazing land in his occupation, for it illustrates most forcibly a leading point in grazing, where the produce of arable land or the use of artificial food is entirely absent, and with the least cost in labour expended during the time of fattening.

In certain districts of the kingdom where the land is capable of fattening an ox without additional food other than grass or hay, it must be accepted as the most valuable that can be found. On such soils and situations where the pastures are so productive it may be safely pronounced that no arable land in the immediate district and of similar soil can be cultivated with any comparison in the profits to be derived therefrom. These facts are patent to every experienced farmer. Such land under cultivation may with the greatest safety be laid into pasture and ignore cultivation entirely, especially under the influence and the advantage to be derived through the new system of using the best pasture grasses as practised by Mr. Faunce de Laune, and to which we have recently referred in this Journal, and shown therein that there need be not only no failure, but a good pasture the first year, and ever afterwards if properly managed. One of the most important points, however, must not be overlooked—that is, obtaining cattle suitable for grazing these valuable pastures. The old system was to purchase four-year-old cattle in good store condition before turning them out to graze. It is, however, now very difficult to obtain four-year-old bullocks except those which are called worked oxen, and these are only available in small numbers.

We have before us an article headed "Young Beef," by a member of the Smithfield Club, Leeds, in which it is stated that the rapidity of growth during the fattening process diminishes year by year with age. During six successive years it was 2.58, 2.05, 1.96, 1.57, 1.37, and 0.89 lbs. successively per diem—a fact entirely corroborative of our argument. This is an excellent practical illustration of our own observation and long experience in this matter, and we can see no reason why it should not be applied in the case of grazing the best pastures instead of purchasing only oxen of full age, for it will of course prove the best method of promoting and securing commercial profits. It, however, involves either a breeding establishment or otherwise the rearing of calves selected in the cheese-making districts, and reared upon the farm which should necessarily contain some arable land for the production of roots, straw, &c., for food and accommodation for the young animals in the winter months. The foundation would then be laid for their future grazing up to two years or thirty months old, from which time they would be grazing for one summer and going to market as beef at about three years of age. In this way we think it should be the system for adoption in the absence of a supply equal to the demand of store animals for grazing.

Turning our attention to the arable lands of districts to which we have been referring, we readily admit that it would be difficult to find arable land turned to so good an account commercially as the best pasture may be, although the soil and climate may be equal in fertility. This appears to be the case at present with so large a number of arable farms which are untenanted, indicating with the greatest security the benefit of laying down such land to permanent pasture under the new method of selection of grass seeds, and of seeding in a Wheat crop if possible. The same indications which would direct the home farmer in laying down certain soils to permanent pasture, point out to him not only the best soils for grazing land, but also decide the question of any other soils and variations of climate by noting the pastures which have been from time immemorial laid in grass. They will also show to what extent the mixed soils prevail, and the former management having consisted of dairy farming and corn-growing combined it will be seen what changes can be made with advantage. We are now alluding to a system of dairy farming either for the production of cheese or butter, although it will still be a matter for serious consideration that some portion of arable is a necessity; still this should also be viewed and made a point of the extent to which arable may be combined in the occupation. We may also refer to some farms, although containing a large portion of arable, whether it may not be an advantageous system in the absence of sheep to keep a suckling dairy, and yet be enabled to make profits equal to that of butter and cheese-making without the labour, knowledge, establishment, &c., required in the manufacture of these articles. Unless they are manufactured under the practical and scientific knowledge which now prevails, the fattening by suckling of calves for veal would be the most profitable, the most simple, the less risk, and the actual retention of the cows in profit for the longest periods, as well as the least labour in management, especially when we consider the high price of veal and great requirements of the present period, and at the same time bearing in mind that choice veal of the best size and quality is now, and is likely to be in the future, like choice young lambs, the principal stock productions which do not meet with a foreign competition. In alluding to the advantages of a suckling dairy, it is frequently adopted in outlying districts farthest from the markets or town, and railway

stations, which include some extra charges for the constant delivery of produce like butter and cheese, and there is also a sure and ready money market for veal not always to be obtained for butter, cheese, or milk.

The management and cropping of the arable land connected with grass land in dairy farming is a very important matter, because the actual growth of green food in summer supplementary to the grazing of the cows does, when given at the stalls, to some extent render artificial feeding stuffs like cake unnecessary, excepting in the case of poor pastures, when it would prove beneficial in two ways—by an increased production of milk, and increased growth of grass on the pastures. In the observations we intend to make with reference to the capacity of either arable or pasture land to yield full commercial advantages, we shall endeavour to lay before the home farmer, and incidentally before the occupying farmers of the kingdom, not only in reference to those soils which are most likely to succeed best under tillage or in grass, but the methods by which the best results are most likely to be obtained. Let us take, for instance, the customary mode of an occasional fallow, which probably by the great majority of farmers and landowners is considered a proceeding essential to success in the cultivation of any arable land; and so it is if the land is foul with couch and weeds, but not otherwise, for in our own experience we farmed lands without making a fallow for more than twenty years in succession, and yet the land was quite clean and yielding full crops of every kind of crop suitable to the soil.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are still engaged in the preparation of the land for root crops; in the northern counties and Scotland, however, the Swede seed has been drilled for some time past. This is at any rate the best time for that work in the midlands, southern, home, eastern, and western counties. If dry weather prevails the Turnip flea or beetle will probably destroy many of the young plants as soon as they show the first leaves; but we have known many farmers frequently attribute this to various causes, such as bad seed or not vegetating from dryness of the soil. It must, however, be remembered that the brown grub, which in its infant state travels at night, eats the first leaves which attempt to show on the surface, hence the unreal inferences often drawn from the non-appearance of the young plants. These grubs are the same sort which when more fully grown often eat off the roots of the Turnip plants as well as those of Mangolds, Carrots, and Cabbages after being hoed out. Clover crops and Sainfoin, as well as mixtures of other grasses for the alternate husbandry, should now be cut just as the blossoms begin to appear, but especially those mixtures of Clovers which were intended to produce a second growth or even a third on good land in a high state of cultivation, more particularly where the layer had been manured with yard or town dung in the previous winter or early spring months, as this is found to accelerate any after-growth, whether for hay, sheep-feeding, or seeding. We, however, strongly object to the practice of feeding the after-growth of Clovers with sheep in all cases when the leas are intended for Wheat. We have frequently seen the best Wheat grown where the Clover as an after-crop has been saved for hay, and even saved for seed, as the lea proves a more valuable preparation for Wheat in consequence of the increased weight and substance of the Clover roots. In reference to tillage operations we especially recommend that in the seeding, and indeed preparation for late Turnips, Rape, Thousand-headed Kale, that a dry season should be provided for, because in case the season later on should prove the reverse, yet the preparation will be favourable, for frequently in dry seasons we may obtain rain enough to vegetate the small seeds of various kinds in the event of the land being in a fine and pulverised state to receive it, yet when tillage work is delayed by waiting for rain before breaking the clods we may not obtain a sufficient rainfall to vegetate small seeds, and the crop may be lost in such a case. Although we have been engaged in tillage and cropping of the land ever since 1827, yet we do not recollect a cycle of nine seasons all of which were adverse to the Wheat crop; but one singular coincidence we remember is that great and abundant Wheat crop have occurred in the following years—namely, 1834, 1844, 1854, 1864, and 1874, notwithstanding we have secured in other years abundant Wheat crops, especially in 1835, 1836, also in 1868, 1870; and if we should obtain a fine Wheat crop in the coming harvest it will again extend the singularity of such a succession of abundantly yielding crops. There has been, however, during our experience only one year—viz., in 1868, when all the cereal crops were abundant, for it must be remembered that on all other periods when an abundant Wheat crop has been obtained the season has proved too dry for Lent corn, pulse, and hay crops, as well as root crops. On the other hand the nine past seasons have been singularly favourable for nearly all kinds of produce on the hill farms and eastern counties produce, except Wheat. The late moist seasons have been greatly in favour of the dairy farmers as well as graziers, and the breeding flocks of sheep on the chalk and limestone hill districts of various counties.

Hand Labour.—Men will now be fully employed in hoeing the various root crops as they come to hand, also mowing and removing the crops of Clover, Sainfoin, Trifolium, and water meadow grasses, either for hay or ensilage. On some farms both modes of preservation of green fodders will be adopted, and where the produce will be required for sale

haymaking will still prevail if the season continues dry, and to the great majority of farmers the ensilage question will not be available; but silos should be available, especially in dairying districts, for the obtaining of ensilage in the winter and spring months will enable the butter-making dairies to turn out a valuable record of butter. Still we must ask those men who have been in the habit of allowing their cows to go dry for three or four months in the autumn and winter to give up their customs and prejudices, in order to avail themselves of the commercial benefits to be derived from the use of ensilage, or in fact, upon any farm where the cows can be fed with roots, bran, hay, maize, &c., instead of their cows being out of profit when their produce is of the most value.

Live Stock.—As calves can now be reared in a healthy and growing state without milk at small cost, it is important that it should be done, so that not only the farmer should raise calves enough to maintain the numbers of cows in the herd, but also be enabled to bring some forward to meet the demand caused by a diminished stock of horned cattle in the country, as shown by statistical accounts and records. Events in America, the news of which arrived last week—namely, that the manufacture of oleomargarine has been forbidden by the Legislature, ought to stimulate the endeavours of dairymen to exertions in their own interest, because if oleomargarine is not to be obtained in America, as also in this and other countries; for American butterine oil, the produce of America, has found its way not only into some dairies rented in this country, but also into continental districts which have supplied us with butter to a large extent, such as it was; yet it met with customers amongst a certain class, who could not afford to buy the best made fresh butter of this country. These facts ought to encourage the dairy farmers of this country to renewed exertions in various ways, but especially to prevent their cows going dry until they spring to calve again. The flocks of sheep on the hill farms, where a sufficiency of water can be obtained, ought to be doing well, although the weather has been rather dry lately; for it has been said in reference to this matter that the grass has most value for feeding in dry weather. The bullocks now being fed for the butcher, whether in the boxes or grazing on the pastures, should be pushed forward by good feeding with cake and maize meal, given mixed with some cut Mangold in their boxes; but many cases will occur on the pastures or park lands where the land is not of first-rate character, when the cattle should receive the same food in troughs or skeps on the grass land in order that the animals may be ready by July or August, the best time for selling summer beef, particularly of young cattle of light weights, as these furnish joints of moderate size well adapted for consumers in the summer months.

OUR LETTER BOX.

White Scour in Young Calves (Old Subscriber).—This, though frequently fatal, may be cured if taken in time. First, do not allow the calf to visit the cow as before, but wean it altogether, feeding with the best known milk substitutes, of which there are many now offered, such as Simpson's Ayre's calf meal, &c. The immediate remedy which is necessary should be:—Take a teaspoonful of laudanum mixed with a little warm oat-meal gruel, and a teaspoonful of prepared chalk, to be repeated every four hours until the diarrhoea ceases.

The Cultivation of Kohl Rabi (J. S.).—This may be successfully grown upon the same plan as adopted for Cabbages—that is, raised in beds, then planted out either on the stretch or on the flat, placing the dung in the centre of the stretch, or otherwise laying it out and raking it into every third furrow, and plant along the furrows directly over the manure. The seed, however, may be drilled and then horse-hoed between the rows, and the plants hand-hoed to the required distance apart. Full information on the cultivation of Kohl Rabi was given in the number of this Journal dated March 18th, 1880.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1884. June.		Baromet- er at 32 nd and Sea Level	Hygrome- ter.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Tem- perature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Inches.	deg.										
Sunday	1	30.022	55.0	48.7	N.	55.4	66.7	40.6	102.7	31.0	—
Monday	2	29.683	58.7	53.4	E.	56.0	70.0	45.9	108.2	40.3	—
Tuesday	3	29.565	61.3	54.2	E.	56.3	67.2	46.5	100.3	40.3	—
Wednesday ..	4	29.764	54.0	51.1	N.E.	56.3	60.9	49.6	69.0	46.7	0.088
Thursday	5	29.819	54.6	51.9	N.E.	55.7	63.8	49.0	113.4	43.5	1.466
Friday	6	29.772	49.8	49.5	N.W.	55.1	57.6	47.3	78.8	46.8	1.003
Saturday	7	29.548	51.2	49.3	N.E.	53.8	60.8	46.0	91.8	44.7	—
		29.739	54.9	51.2		55.5	64.1	46.4	94.9	41.9	2.537

REMARKS.

- 1st.—Fine, and fairly bright.
- 2nd.—Pleasant, but generally dull.
- 3rd.—Rather brighter, but spots of rain.
- 4th.—Dull, rain in afternoon and evening.
- 5th.—Dull morning; very heavy rain began at 2.30 P.M., half an inch fell in an hour and a quarter; the heaviest part of the rain was over by 6 P.M., but the fall continued till midnight.
- 6th.—Rain nearly incessant from 6 A.M. to 6 P.M., then fair.
- 7th.—Rain from 1 to 8 A.M., then fair, except a few drops.

Temperature on the whole near the average, but occasionally much below it. Very heavy rain on 5th and 6th, just one-tenth of the average quantity for a whole year falling on those two days.—G. J. SYMONS.



COMING EVENTS

19	TH	Sale Show, three days.
20	F	
21	S	
22	SUN	2ND SUNDAY AFTER TRINITY.
23	M	
24	TU	
25	W	Royal Horticultural Society Committees. Fruit and Vegetable Show. Croydon, Leeds, and Tooting Shows.

THOUGHTS ON CURRENT TOPICS.

THINKING backwards is a process by no means difficult when exercised in connection with the contents of a book or journal. It simply means starting at the end at which it is usual to finish, and concluding with the page at which it is usual to commence. I think I have heard it said that some of the most able "reviewers" adopt that system; and as the practice of "apeing our superiors" is not yet obsolete, I shall not be out of fashion at any rate by attempting to proceed on the same lines.

I FIRST pause over a little unpretending paragraph next the bees, having reference to a not too widely known greenhouse plant—*Choysia ternata*. This plant is often seen long, lanky, and miserable because kept under glass always and not sufficiently pruned. The writer of the few lines in question hits the nail on the head when he refers to cutting back the plants and eventually placing them in the open air, as they "do much better outside than in during the summer." This is very true. The best examples of culture I have seen were planted out in prepared soil on a sheltered border, attentively watered, and taken up and potted in early autumn. I have often thought it is not possible to produce such dwarf bushy plants with bright foliage, and every shoot terminating with a truss of pure white flowers, by any other method of culture. At any rate, it is a mistake to keep the plants under glass and not cut them down, for they can no more be well produced in that way than can show *Pelargoniums*. Persons intending growing this useful plant will do well to think over the little paragraph above referred to.

TURNING backwards to the next page, a few lines on selecting early the wood of Peach trees and disposing it thinly contains in small compass abundant "food for thought." Of all the mistaken practices that are indulged in where they ought never to be seen, that of crowding-in shoots in summer to afford employment for cutting them out in winter is one of the greatest. If the thousand-and-one individuals would "think" a little more about the work in which they are engaged, instead of following a mere imitative rule-and-thumb practice of somebody else as thoughtless as themselves, they would not so frequently have to deplore the failure of Peach crops. Let the maxim in the paragraph on page 473 be "learned by heart" by every young gardener—"A fruit tree is cultivated solely for its fruit, and therefore no shoot or branch should be retained upon it, or rather be allowed to grow at all, if it does not in some way contribute to the desired end." Repeat that until it is mastered; think about it until its full significance is comprehended, and a lesson will be learned in fruit-culture that may stand the pupil in good stead, and perhaps may make him famous in his generation.

SUMMER-PRUNING Currants is alluded to in the next No. 208.—VOL. VIII., THIRD SERIES.

sentence. It is a good practice when done in time, but let it be remembered that pinching the shoots to two or three leaves *now*, as advised, is very different to allowing the breastwood to grow until the fruit is about ripening and cut off the shoots to two or three leaves *then*, because those two or three leaves suddenly exposed will shrivel at once if the weather be hot, and the bulk of the fruit will shrivel too, as many bushels did once upon a time when a certain young cultivator, by want of thought, "let daylight in" with a vengeance and roasted the crop. Following advice a fortnight or three weeks after date often ends disastrously; the adviser is then, of course, blamed, the real blunderer never thinking for a moment that any fault can attach to him; but it is "all along a-reading that there paper."

"M. M." is on safe ground in recommending greenhouse *Rhododendrons*. There are few that are not beautiful; but one is named that does not often receive honourable mention—namely, *Rhododendron fragrantissimum*. This is not only charming by the purity of its flowers, but its fragrance is delicious, resembling Honeysuckle intensified, and hence ranking amongst the sweetest of conservatory plants in spring. I thought when I read about these plants only "15 inches high, bearing many fine trusses of splendid blooms," that I should like to have seen them, as I did not know that this too-much-overlooked species or variety, whichever it is, would flower so freely in such a dwarf state. How does "M. M." propagate them? on what stock are they grafted? and will someone state the origin of this the sweetest of all *Rhododendrons*? The particulars requested would, I think, be acceptable to many readers of the Journal.

AND now I come to a series of paragraphs of a kind that periodically puzzle me. I try to think them over, but really do not know what to think about them. The labours of the Scientific Committee of the Royal Horticultural Society must presumably be very interesting to themselves, and the records instructive to persons of keen perceptive faculties. I try to picture in my mind the various abnormalities, malformations, and vegetable quixoticisms provided, and fancy I see the learned scrutineers at work with their eye-glasses, and try to imagine the erudite remarks as the subjects are passed on to somebody for "examination and report." The exams are made, no doubt, and the "reports" duly registered. What a bulk of wisdom must be pigeon-holed somewhere for the use of—well, I think it must be for the members of the Scientific Committee. I cannot drive my thoughts beyond that at present.

THE accounts of the Fruit and Floral Committees are more intelligible, and valuable as records of the progress that is being made in the horticultural world; valuable also as stamping with authority those which are really good amongst the bewildering numbers of claimants to popular favour. There may occasionally be good things passed unhonoured at these meetings, but it is something to feel that it is exceedingly rare for anything that is bad to be granted a certificate. In the fruit and vegetable departments very few mistakes indeed have been made, and I think the Committees merit what they so often accord to others—a vote of thanks.

PYRETHRUMS seem to have been in large force at the last meeting. The report says they were "superbly shown," and I think some of them are "superbly" named. Is Langport classical ground, at least that portion on which the single varieties are grown? for the doubles, I perceive, have earthly names, and rememberable; but how such outlandish names as Abacena, Abdarites, Abarinion, Acacisius, Babysra, and Nisbola can be considered appropriate for these simple and pretty border flowers passes my comprehension. They will never rest in the memories and fit comfortably the mouths of the majority, and hence can scarcely advance the

No. 1864.—VOL. LXX., OLD SERIES.

popularity of the truly English flowers on which they are inflicted. They must be very learned at Langport.

At last we have something like a solution of the conflict of opinion as to the distinctness of *Lilium Harrisii* from *L. longiflorum*. Some persons maintain their identity; others as strongly believe in their dissimilarity. If, as appears not unlikely, the bulbs have "got mixed," there is no wonder that confusion should have arisen, and in such case the disputants are in the happy position of all being right. The true Bermuda Lily is very beautiful, and I think dissimilar from and superior to both *L. longiflorum* and its variety *eximium*.

THE subject of pruning Gooseberries is incidentally alluded to in a note on page 465, in which it is stated examples of pruning and non-pruning may be seen in the neighbourhood of the metropolis, and in nearly every case the unpruned bushes have the best of the crop. Possibly similar examples may be seen elsewhere, such as neglected bushes of cottagers being laden with fruit, and the scientifically pruned trees in the squire's garden practically barren. I was taught to prune severely and leave the centres of the trees sufficiently open to place my hat in. For years I stupidly and thoughtlessly carried out the system, and was often annoyed in not being able to gather a hatful of berries. For ten years (1864 to 1874) that method was adopted with never a full crop of fruit weighing down the branches; for ten years (1874 to 1884) not a tenth part of the time previously occupied has been spent in pruning, and certainly ten times the weight of Gooseberries were gathered. This year is no exception; bushes slightly pruned are bearing heavily, while over the wall in the next garden, where close pruning is the order of the day, there are no Gooseberries. Next year the trees in that garden are to be differently treated; every alternate row only is to be pruned, and I have bet the gardener a new hat that those let alone will bear one-third greater weight of fruit than the others. I think I shall win.

MR. MUIR'S notes on Celery are suggestive. A good deal of the bolting of Celery results from the bad practice of leaving the plants in nursery beds too long, and permitting them to become 9 or 10 inches high before being planted in the trenches. If hot weather follows it is almost impossible to keep such plants steadily moving, except backwards, and then flower spikes almost inevitably form. When Celery is grown by the acre for market no such practice is adopted, nor are deep trenches made and filled with an extravagant quantity of manure. Sufficient to start the plants and an abundance of liquid food afterwards produces good Celery. The driblet system of earthing is attended with one danger—the extreme liability of the roots getting dry when buried under 6 or 8 inches of soil, and this alone has been the cause of thousands of Celery plants bolting. The longer the earth is packed round the stems, too, the more are they eaten where grubs abound. It is very easy to err by commencing earthing too soon, but a thick mulching of manure or short grass from lawns is valuable in keeping the roots moist, and it lessens the necessity of such frequent waterings.

THE subject of mulching is admirably treated by Mr. Iggulden, whose remarks on page 459 are as sound as they are opportune. Daily sprinkling flower beds with cold water is pernicious, as the consequent evaporation extracts the heat from the soil as fast as it is imparted by the sun, and the roots perish while the leaves scorch. That, I think, is the cause of so many plants refusing to grow that are half watered daily in hot weather. They may be sprinkled until they positively starve to death. One thorough weekly watering, giving sufficient to pass quite to the subsoil, and mulching the surface to prevent evaporation, and consequently retaining both heat and moisture, is infinitely more

potent in promoting the growth of plants than daily sprinklings that seem so fashionable. There are so many extremists in the world that the expression of opinion in favour of shallow *versus* deep cultivation of vegetables may not prove of the greatest benefit. The surface-scratchers will have an excuse to go on scratching, and if their crops fail in dry weather they will be fortified with an authority. I think a revolutionary innovation of that nature should not be in the form of an interpolatory sentence. The subject should be treated more fully or let alone, or the meaning of the innovator will not be rightly understood by all.

I THINK that is all I have to say at present, except to observe that I cannot undertake to "think aloud" every week, as I have been invited to do by the writers of some letters that have been forwarded to me by the Editor.—A THINKER.

ESPALIERS.

WHY do I recommend on page 437 the converting of horizontal espaliers into palmette verriers? Because, as is clearly stated in that article, "its inherent weakness of form invariably led to premature barrenness and decay in the lower branches." That this statement is borne out by facts there can be no question. In many an old garden have I seen espaliers with the lower branches in various stages of decay while the top was still in full vigour, and I have lived long enough to see a considerable number of espaliers planted in the best of soils for fruit culture (a deep rich loam, brought into fruiting under careful and skilful culture, yielding four bushels of fruit to a tree; fruit, too, so fine that I have a note of a Gloria Mundi Apple picked off one of them weighing 23 ozs.) reaching the stage of barrenness, debility, decay, followed by the equally inevitable cutting down, grubbing, and replacing with young trees. It will therefore be evident that I have ample reason for not saying "Agreed" to "A Thinker's" inference that I should be disposed to leave such trees alone.

When I sat down to write the paper on espalier Apple trees I had no intention of making the drawing printed with it, and did so simply to make the matter clear, just as one is apt to make a hasty sketch in a letter to illustrate one's meaning. Further thought leads me to inquire if the ends of horizontal branches might not be turned upwards, and the form of the tree be so changed without much wasteful destruction of fruiting wood? Certainly this could be managed upon many trees with comparatively young and pliant growth, but older rigid growth would have to be cut as in fig. 100. Trees so converted would not for a while look so well as a finished palmette verrier; but this is clearly a case wherein utility stands before appearance, and the end and aim of fruit culture—the production of full crops of fine fruit upon healthy trees—has to be kept well to the fore. If, therefore, it is possible so to alter and improve a faulty form of training, it certainly ought to be done.

But says "A Thinker," "I cannot see clearly how the space between two trees could be occupied after some feet had been cut from the larger branches and the resultant growths trained vertically." Has my critic never seen a cordon? and is he aware how quickly those invaluable little trees come into bearing? Planted 18 inches apart they soon fill every foot of space assigned them, not as mere makeshifts, but as really valuable fruit trees. I hope next planting season to plant at least one row of espalier cordons, and take this opportunity of recording my opinion that cordons are the best—better even than palmette verriers for espaliers, and, with one or two exceptions, for walls. My exceptions are Peaches and Nectarines, and perhaps Figs, and yet I really cannot see why Fig cordons cannot be managed as well as any other sort of fruit. What we require in a Fig tree is plenty of short-jointed stout lateral growth, every such shoot of a Brown Turkey or Brunswick giving two or three Figs from the upper buds upon open walls, and under glass other sorts do so too. Compare the points of merit in a cordon with those of any other form, and see how much may be said in its favour. It requires so little space that a failure is made good without materially affecting the fruit supply; it comes quickly into fruit-bearing, and yields fruit of high excellence in size, form, colour, and flavour. It is true that a single cordon cannot yield much fruit, but I believe it will be found that five diagonal cordons trained upon wires to a height of 6 feet 6 inches will, when fully developed and in full bearing, give a bushel of Apples. Although I cannot speak positively here, yet my assertion is not mere guesswork, but it is based upon fairly reliable data. Much

more serious is the loss of a palmette verrier; the work of eight or ten years is not only lost, but the huge gap in the line of espaliers is a disfigurement which is best got rid of by planting the more useful cordon.

Spur-development is a matter of the highest importance, requiring intelligent and watchful care. No hard-and-fast rule can be safely applied to it. Compare the growth of a Margil or Keswick Codlin with that of Bedfordshire Foundling or Warner's King Apple, and it will be seen that while the first two may perhaps be restricted to 6-inch spurs or thereabouts, the more rampant growers may advantageously have longer spurs. Six inches! why I have seen many an Apple measuring nearly as much as that in diameter, and how many of such fruits would "A Thinker" produce upon his puny spurs? To test the matter I have just been to a Margil tree, and found a spur slightly over a foot long with twelve clusters of fruit upon it. I opine that a few such spurs would go very far towards winning that medal, albeit I am perfectly content to have the fruit without the medal. I am strongly of opinion that there is by far too much fastidious refinement about spurs and precision of growth. I have seen both tree-lifting and pruning carried to a ridiculous and hurtful extreme, and again say, Let us treat each tree according to its requirements, and not by line and rule.—EDWARD LUCKHURST.

THE CUCUMBER DISEASE.

ON page 476 the above troublesome pest is alluded to, and I can well pity anyone having to battle with it, and at the same time expected to keep up a supply of fruits. For two years, 1881 and 1882, we had it here. It made its appearance about June in the Cucumber house. Fresh seed and soil were obtained, and another house that had not had Cucumbers in it for at least five years was devoted to them; but no sooner had the small fruits appeared than they were attacked, and no good Cucumbers were cut. Some plants were also put out in new three-light frames, and they also were attacked. Vegetable Marrows also shared the same fate towards August, the Custard Marrow in particular being worse than the Long White sort; but strange to say, a house full of Melons of three varieties next to the Cucumber house escaped altogether, not a trace of it was seen. Although fumigating and disinfecting with tobacco paper and sulphur was tried at the end of the season, the following summer it made its appearance again, but not in so virulent a form, and its not attacking the Marrows outdoors I attributed to a warmer summer than the previous one and less rain. I also employed more fire heat and damped the Cucumber house less of an afternoon with beneficial results; the extra 10° or so with less moisture seemed to arrest the disease. At the end of the season, however, I determined to give the house a more thorough disinfecting, and not have a Cucurbitaceous plant on the place if possible for the disease to exist on for at least four months, and I am glad to say that since that time (the last two seasons) I have not been troubled with it.

When the Cucumbers were cleared out and burnt in October about 2 lbs. of sulphur with a handful of tobacco powder was placed on the red-hot pan of a fire shovel. It was then put in the house and allowed to burn itself out. The house was kept closed for two days, and all insects and plants, such as woodlice and small Ferns on the wall sides, were killed. After that about a half gallon of paraffin and plenty of softsoapy hot water was used in scrubbing the glass and woodwork, and when thoroughly dried the house was used till the following March for miscellaneous plants, such as Cyclamens, Pelargoniums, and Primulas, and since that time I am glad to say I have not been troubled with the disease.

Increase of fire heat, with less atmospheric moisture, I believe is the best preventive for the Cucumber disease. Dryness at the root, however, must be avoided, or mildew and red spider will be encouraged. When the disease was with me at its worst I showed specimens of it to an eminent cryptogamic botanist and authority on diseases of plants, but he could give me no certain cure for it.—A. HARDING, *Orton Hall Gardens*.

PYRETHRUMS.

THERE is no question that single Pyrethrums are preferred to the double varieties for their simplicity and brightness of colour, the florets exhibiting the striking distinctness of tint around the golden disc with an elegance of form which renders them useful when far in advance of the double varieties. The effect of the single forms in a mass is very striking, and they lose nothing by being seen under artificial light. In brief, the single Pyrethrums are in early summer

what the single Dahlias are at a later period, not the least of their charms being their handsome Fern-like foliage, and they are even hardier and more free growing than the double varieties. If the single varieties are beautiful—and they have only to be grown to be appreciated—the double varieties are indispensable in every garden for producing a grand effect in early June; whilst for cutting they are invaluable, whether for associating with other flowers in vases or as specimens in glasses. The flowers are far more handsome than Asters, albeit they are not rivals, as they come in so much earlier, and are in June what the Chrysanthemum is in November.

Pyrethrums are hardy, but they will not grow in every soil or in every position. In a wet or heavy soil they will not succeed, and in shade or in shrubby borders they are useless. It is no use planting in a wet soil without first draining it, or where the soil is heavy without making it porous by the addition of old lime rubbish, sand, gravel, &c.; nor in shrubby borders unless the situation be sunny and the soil not permeated through and through by the roots of the trees and shrubs. Pyrethrums like a good friable loam and liberal treatment, watering with liquid manure freely in dry weather. In autumn a top-dressing should be given of decayed manure or thoroughly decomposed matter from the rubbish heap, and in March it may be neatly pointed in. Early in May a good watering should be given if the weather be dry, and the surface mulched with manure a couple of inches thick, with good supplies of water or liquid manure once a week unless the weather be wet. When extra fine blooms are desired the stems should be thinned as soon as they show their flowers, leaving the strongest and most promising only. After flowering remove the old stems, and the second growth will be strong, some of it continuing to give flowers in late summer up to frost. Slugs are very partial to the growths, eating them off within the ground during the winter. Where these pests abound it is a good plan to remove the soil about the crowns in autumn, dusting with quicklime, and apply a layer of sharp ashes.

Propagation is effected by division, which is best done in spring. Each part taken off with a portion of roots will grow if duly attended to with water. The rootless portion may be potted singly and plunged in ashes in a cold frame, kept close and shaded from sun until established, when they should be gradually hardened. The best means of propagation, however, is by cuttings in summer directly after flowering, at which time the plants form fresh growths. Take off each cutting with a portion of the root-stem, and insert it to the base of the leaves in light sandy soil in 3-inch pots, plunging them in ashes in a cold frame, keeping them moist and shaded, damping them every morning through a fine rose. A little ventilation may be given in dull weather, and when rooted and growing freely gradually harden them. The plants so raised may be placed out in September in prepared beds or in the borders, or they may be wintered in a sheltered position plunged over the rim of the pots in ashes, transferring them to the flowering quarters in spring; but the plants are best put out as soon as they are well rooted, allowing 18 to 24 inches distance between them. Some of the best varieties are the following—

Single-flowered.—Grandiflorum, rosy earmine; very striking and large. Bellona, brilliant red; very clear and good. Ruby, rosy purple, shaded carmine; a telling colour. Warei, very rich carmine and crimson; extra. Coccineum, reddish purple; fine flower. Vivid, amaranth; very bright and fine. Kleinholtz, crimson; very large. Hamlet, deep pink; very good. Orlando, bright red. Vanity Fair, deep pink; large. Fairy, flesh; good. Emblem, rosy lilac; very large and telling. Virginal, white; of good substance.

Double-flowered.—White Aster, the best and largest of the whites. Mont Blanc, white; very free and fine. Olivia, very large, white. La Vestal, blush; large, extra. Nancy, blush and white, or blush white shaded salmon; fine. Lady Derby, silvery flesh; very pleasing. Madame Billiard, pale flesh; fine flower. Dr. Livingstone, flesh; very good. Gustave Heitz, rosy pink; fine flower. J. N. Twerdy, bright red; fine. Captain Nares, brilliant crimson; fine. Progress, deep red; fine. Nemesis, rose, tipped crimson. Ne Plus Ultra, lilac; large and fine. Captain Boyton, carmine, edged white. Imbriatum, carmine, tipped white. Haage et Schmidt, carmine in outer petals, rose and white centre; fine. Le Dante, rose, tinged orange. Globe, outer petals rosy lilac, centre deep rose; fine. Emile Lemoine, crimson, tipped gold. Panorama, blush, tipped yellow. Vance, creamy yellow, tinged flesh. Solfaterre, sulphur; distinct and fine.—G. ABBEY.

EARLY PEACHES AND NECTARINES IN POTS.

OWING to insufficient artificial heat we have no real early Peach house here, and our first fruits from ordinary trees cannot as a rule be gathered or ripened before July, but of late and in May we have had quantities of ripe Peaches and Nectarines from trees in pots. These were bought in two years ago from Messrs. Smith of Wor-

eester, and although they did well last spring, or—that is, in 1883, we did not try to crop them to the utmost then, but this season they have been bearing fully. Half a dozen were placed in an out-of-the-way corner in a Pine house in January last, and here they flowered freely, set a capital crop, and swelled to our satisfaction. Some of the little Nectarine trees growing in a 10-inch pot produced as many as seventy well-developed fruits, and we found them all most acceptable.

This plan of introducing a few pot trees in order to secure early fruit is a capital one, and should be generally practised by all who have no special early Peach house. It is quite a simple arrangement placing pot trees in the corners of warm houses in spring, as with a little care they will succeed in such situations perhaps beyond expectations. Early in spring, when the flowers are open, they require to be brushed over daily, then insects must be kept down with the syringe; but the most important of all is to keep the plants well watered at the roots. There must be no fluctuation in this. Once too dry is ruinous, as it checks growth, and not unfrequently causes the fruit to fall; but it is easy enough to keep the soil and roots moist by watering from once to three or four times a day, according to the heat and aridity experienced. When the fruits are newly formed they should not be hurried on by stimulants, but as soon as they have formed their stones liquid manure may be applied every alternate day, and a change of food is beneficial. Sometimes we water ours from the cow manure tank, then they have a little guano, and all such is given in a weak diluted state.

As soon as the fruit has been gathered attention must not cease; on the contrary, it is just at this time that they must be well attended to, that a good crop may follow next year. In bringing the trees from a warm house they should be gradually hardened until they can be finally placed in the open air in July. Then they should be in a sunny position, with the pots plunged to the rims in ashes, and water must be given freely whenever it is required.—K. G.

NOTES FROM MY GARDEN IN 1883.

HERBACEOUS BORDERS AND ROCKERY.

THERE is nothing in my garden that gives me a greater amount of pleasure than do those portions devoted to hardy plants, for the pleasure is not that of a few weeks, but lasts throughout the entire season. From early spring to late autumn there is always something to be seen, something to admire; and as I can recall the time when, following the stream, I used my space and time for the collection of bedding plants, and gazed for many months on empty beds, where now I have always something, if not in flower, at any rate green, and fresh, and promising some future enjoyment, I can appreciate the change which has taken place in this style of gardening during the past few years; and while there may be danger in running, as we are so apt to do, into extremes in England, yet has the change been of immense benefit to gardening, and an especial boon to those who only possess small gardens.

We were wont to regard the Snowdrop as the earliest harbinger of spring; but long ere the Snowdrop had opened, beautiful clumps of *Cyclamen vernal* and *Atkinsii* rejoiced our eyes with their pretty blooms and foliage. By-the-by, is it certain that *Atkinsii* is anything more than a variation? Mr. Atkins of Painswick (lately deceased) crossed *vernum* with *persicum*, and hence obtained this variety; but may it not have been, as in many instances, that the crossing failed? I cannot trace a shade of *persicum* in it, and as that is not hardy, which certainly *Atkinsii* is, it gives colour to the notion that Nature was more powerful than the hybridiser. Then immediately after that came that very fine Snowdrop, *Galanthus Elwesii*, far superior to the common Snowdrop of our gardens in the size of its flowers, and, as far as my experience goes, earlier. With this also were associated *Crocus Imperati* and a few others. *Hepaticas* are with me a failure, why I do not know; but even *H. angulosa* has not done well, and its blooms have been invariably eaten off by slugs before they are fully developed. Then came at nearly the same time delightful clumps of the lovely *Chionodoxa Lucilæ*. I cannot understand anyone thinking lightly of this lovely gem if they succeed in growing it. Every year seems with me to increase its value. At first it had only two or three flowers on a stem, now it is to be seen with seven, and a friend informs me that he has had one with eleven on it; then, as the smallest bulb blooms, as each clump increases in size the blooms are more numerous. Beds of it are very beautiful, and I do not think it is any disparagement to the older *Scilla siberica* to say that it rivals if not excels it.

I am not sufficiently affected by the Daffodil mania to go into ecstasies over them. They are doubtless very beautiful, and add a great charm to our early flowers, but as to going in for a collection of them as a collection I do not see it quite yet. In the little paddock in front of my house the common double Daffodil has established itself, and various patches of it in the Lenten season have a very pretty effect. I notice each year an increase in the number of clumps. How does this arise? Being meadow it is never disturbed, and consequently as the clumps are some distance from one another I do not quite understand how this increase is effected. *Narcissus minor* I have found to be a great favourite with slugs, and unless carefully watched none of the blooms escapes their ravages. I have a few of the incomparabilis section, and some of the *Leedsii* seedlings, but with that exception I have not much

in the way of variety. Perhaps I may this year increase my number. Along with these I have dotted over the border clumps of *Hyacinths* in mixed colours. As I each year grew some sixty or seventy of imported bulbs, these are then planted in the borders, and I have very often very fine blooms, and are very gay. There is in my Rose border a clump all the produce of one bulb, which was planted there some eight or ten years ago, and this year it had nine trusses, and many of them of good size. After these have passed away clumps of *Narcissus poeticus* and *Gesneriana Tulips* make the border look pretty, but there is then a little gap, when the *Aquilegias* of various kinds, hybrids and others, come into flower, and *Papaver orientale* shows its brilliant blooms: then again all looks gay. In the end of June and onwards some grand clumps of *Liliums* begin to develop themselves—*testaceum*, *dalmaticum*, *incomparabile*, and *Sappho*; *pomponium*, the old Orange Lily, the grand old Tiger, *Szovitzianum*, *Batemanniae*, *Michauxi*, and others, until we come to *L. speciosum* and *auratum*; and then when the grand spikes of *Delphiniums* from 6 to 7 feet high develop themselves how grandly gay the garden is! I always plant out a few of the coloured-leaved *Pelargoniums*, so that they fill up the gaps formed by the bulbs which have lost their foliage. And so on through *Pyrethrums* single and double, single *Dahlias*, &c., we have a succession of gay and fragrant blooms, for I cannot do without the old-fashioned Sweet Pea, Lavender, and Mignonette. Most of the plants that I have named and many others will flourish in almost any garden, with the exception of Lilies, whose culture on such soil as the London clay is almost hopeless. I must not omit to mention some plants which are rarely seen amongst us, but of which I had four years ago half a dozen bulbs from Messrs. Souillard & Brunelet of Fontainebleau, the successors of Mons. Souchet—the hardy varieties of *Amaryllis vittata*, one of which threw up a fine spike of bloom last year, and which I sent to the Floral Committee of the Royal Horticultural Society, but, unfortunately, the letter I sent with it miscarried, and so no notice was taken of it. They stood through the two severe winters of 1880 and 1881, so I reasonably conclude they are hardy, in the south-east of England at any rate. They are very showy, and certainly deserving of more consideration than they seem to have received as yet.

My small rockery has been a great delight to me, especially during the early months of the year, and the following did very well:—*Ramondia pyrenaica* has spread and made quite a little colony for itself, and flowered exceedingly well. It is so very pretty that those who have even the smallest rockeries should try it. It likes heat, which I cannot well give it, quite a shady position, but even in my too sunny position it has done well. *Saxifraga oppositifolia*, which I had oftentimes tried to establish, but in vain, has at last done well, and promises to make a good clump, and as it is one of the earliest flowering plants we have, it is satisfactory to be able at last to get it to do well. In May, when large clumps of *Aubrietia* (Ingram's variety), *Iberis coriacea*, one of the very whitest flowers we have; *Phlox verna* and *setacea*, the pink Rock Roses, and the yellow *Potentilla* were in flower at one time, it was as pretty a piece of colouring on a small scale as we would desire to see. Another plant about which I had some doubts as to its flowering was the Himalayan *Androsace sarmentosa*, but it has redeemed its character and bloomed from every rosette, while it is spreading widely. It is excessively pretty in all its stages, whether in its pretty Saxifrage-like rosettes in winter (when it is better to place a glass over it), or in spring when it sends up its pretty little pink flowers. My clump of *Cypripedium spectabile* has again increased. It flowered very freely, and evidently likes its position, which is not, however, so moist as I should like for it. *Oethionema grandiflora* did very well, and was full of bloom; but for some reason or other my *Trilliums* have not flourished. I must endeavour again to try them, for I think *T. grandiflorum* one of the prettiest spring flowers that we have.

I have not by any means exhausted the number of the plants which have given me so much pleasure in the herbaceous border and the rockery, and it is astonishing what a number of different species we may grow in a small garden if one is content with a single clump of them, and how much pleasure one may derive from the beginning to the end of the season. Happily the taste is widely increasing, and there is not much need now to encourage people to try to grow them; and while we encourage the old-fashioned flowers of our forefathers, let us not forget that the zeal and energy of our nurserymen have added numbers of beautiful plants of which they knew nothing.—D., Deal.

PRUNING ROSES.

SOMEBODY has sent me this day (June 12th), the *Journal of Horticulture* dated May 1st. I expected one dated June 12th, and did not discover the ancient date until I had read it through, but was rather puzzled that there should be a letter about pruning Roses so late in the season. The letter is signed "A. C." I, like "A. C.," am an advocate for early pruning, but not quite so early as he commences. In our latitude and longitude I reckon March 7th about the right day to begin. I did so this year, and about the middle of April the buds were looking plump, and some had started into shoots about 2 or 3 inches long. Then came the frost, and about the end of May I found the tops of the pruned branches looked miserable; the leading shoot killed outright, and the buds below, instead of breaking into strong shoots, breaking out in frizzled bunches. I have had to prune them all again down to the first strong-growing healthy shoots, and my blooms I reckon will have been retarded a week or ten days. A Bedfordshire friend (perhaps the best Rose-grower in Bedfordshire) called on me a few days ago, and rejoiced to say that he had not pruned a single plant in his garden before the disastrous frosts

of April 21st to 23rd, and now his plants were looking very promising and growing vigorously, and I am inclined to think that late pruning is safer than early pruning.—F. H. G.

STAPELIAS.

THIS is a large genus belonging to the order Asclepiadaceæ, most of the species producing fantastic and brilliantly marked flowers. However, there is no denying the fact that at the present time Stapelias are not popular; indeed, very few know them, therefore I consider them worthy of special attention. I have always considered the taste for and introduction of Orchids to have been one of the reasons for Stapelias going out of fashion, which I will endeavour to explain: thus, when Orchids began to be understood, it was found that the smoke-flue-heated stoves did not suit their requirements, because living in and drawing their nourishment entirely from the moisture of the air, the dry atmosphere generated by the flue was not congenial to their wants, and from that time hot-water pipes rapidly took their places. Now, it so happens that the atmosphere produced by the smoke-flue is the most congenial to the plants under consideration, or at least I have never seen them growing in such perfection under any other conditions. Stapelias, however, have another defect; and that is, instead of yielding a fragrant perfume, or being altogether scentless, they give off a very offensive odour, but if grown upon shelves in the house this becomes less perceptible. They must not be considered stove, but rather warm greenhouse plants, and as we must perforce again see many of the fine-flowering Cactuses in our plant houses, the Stapelias and they will find a dry warm corner of the greenhouse set apart for them.

The genus was named by Linnæus in memory of a Dutch physician, one Bodæus Stapel, and to the celebrated and successful collector Masson we are indebted for the majority of the species which were introduced towards the end of the last and beginning of the present century. Stapelias have been sub-divided by Haworth, but for convenience sake we shall here take a general view of them.

These plants are easily cultivated. Drain well, pot in light sandy loam, adding sand and old rough brick rubbish. At all times they should be carefully, and even sparingly watered, but during the winter months very little indeed will suffice. When growing in spring keep them in a close greenhouse or the cool end of a dry stove; in summer an ordinary airy greenhouse will suit them best, but in autumn a dry warm nook is necessary in order to encourage them to develop their flowers.

The following is a list of the most distinct species, all of which are natives of the Cape of Good Hope, except where otherwise stated. The dates following the description indicates the year of introduction.

S. bufonia.—A peculiar plant with erect stems, and branches simple, obtusely four-angled, as are most of the species. Spines cross-like. Corolla flat, with no tube, five-lobed; lobes spreading, acute. Ground colour yellow, spotted all over with lines of brown spots. 1806.

S. variegata.—This, like the preceding species, belongs to Haworth's sub-genus Orbea. It is a very showy plant, and is well shown in the wood-cut (fig. 112). Stems obtusely angled, bearing a few distant spines. The flowers are large, the corolla being five-lobed, spreading; lobes ovate-acuminate, and the colour is bright yellow, irregularly but profusely blotched with cinnamon. 1727.

S. vetula.—Stems branching, smooth; teeth rounded. Corolla flat, with lobes lanceolate-obtuse. Colour heavy purple, with a few lines of a lighter hue. 1800.

S. pedunculata.—A beautiful free-flowering species, belonging to Haworth's sub-genus Caruncularia. Stems almost cylindrical. Footstalks very long and pendulous. The corolla segments are lanceolate with revolute margins, the colour being reddish purple, paler at the base, and fringed in the angles. Cape of Good Hope. 1784.

S. sororia.—This is a truly beautiful species, having branches furnished with acute incurved teeth and pendulous flowers. The corolla is reflexed, oblong-lanceolate, purplish brown, each lobe having a patch of yellow at the base, which is transversely barred with reddish purple; margins of the lobes ciliated with long brown hairs. 1797.

S. Plantii.—Of somewhat recent introduction, bearing out our assertion that the colony from which we received it must have many treasures yet to yield us. Stems creeping. Branches erect; angles furnished with short incurved spines and short footstalks. The corollas are reflexed 4 to 5 inches in diameter; the lobes ovate-lanceolate, purplish brown, transversely barred with irregular lines of light yellow, and having an uninterrupted marginal band of chocolate-brown. The margins are fringed with long light-coloured hairs. Native of Natal. 1866.

S. grandiflora.—At once a grand and singular flower. The corolla is 4 to 6 inches in diameter, the lobes lanceolate acute. The centre and nearly the whole of the segments are densely clothed with long fine silky hairs of a reddish purple hue. The tips of the segments are naked, blackish purple, the margins being ciliated with long white hairs. 1795.

S. Asterias.—The flowers of this species bear a wonderful resemblance to a star-fish. The corollas are five-lobed with lanceolate lobes. The margins are revolute and ciliate. The colour is deeply purple, transversely streaked with irregular wavy lines of a paler hue. 1795.

S. pulvinata.—Stems decumbent. Flowers 4 to 5 inches in diameter, five-lobed; lobes broad, sub-rotund, somewhat wrinkled, acuminate; the ground colour yellow, transversely banded with irregular lines of dull purple. The tips of the segments are dull brown, banded the same as the larger portion. The margins are densely fringed with purple hairs, the centre of flower being profusely clothed with long reddish brown hairs. 1795.

S. verrucosa.—Stems reclinate. The corolla is flat with recurved segments, the colour being yellow spotted with reddish purple; the centre of the flower elevated, warty. It belongs to Haworth's section Podanthes. 1795.

S. picta.—A dwarf-growing beautiful species. Flowers on long drooping peduncles. Lobes of corolla flat and spreading, ovate-acuminate, slightly wrinkled. The ground colour purplish crimson, irregularly marbled with yellow. 1799.

S. revoluta.—This beautiful species belongs to the section Tromotriche, Stems erect, very little branched; teeth blunt and spreading. Flowers on short footstalks. Corolla very fleshy; segments revolute, the margins prettily

decorated with club-shaped black hairs. The centre of the flower is pale yellow, the lobes reddish purple. 1790.

S. lentiginosa.—Stems five-angled, with swollen spreading tooth-like angles furnished with short hook-like spines. The corolla is sub-campanulate, five-lobed, with a little point in the centre of the wing between the lobes. Ground colour of yellowish white irregularly spotted and blotched with crimson. 1800.

S. reticulata.—This is nearly allied to the preceding. Stem five-angled, much-toothed; teeth spreading. Corolla sub-campanulate, having five little points between the five lobes, thus almost making the corolla appear to be ten-lobed. Colour yellowish white, profusely though irregularly blotched with dull purple. 1809.

S. campanulata.—Stems erect; teeth sharp and spreading. The corolla funnel-shaped; limb five-lobed; segments triangular and acute, with five smaller points between the lobes. Ground colour yellowish white, irregularly dotted and spotted with purple. 1809.

S. glauca.—The stems of this species are glaucous, with a five-lobed revolute

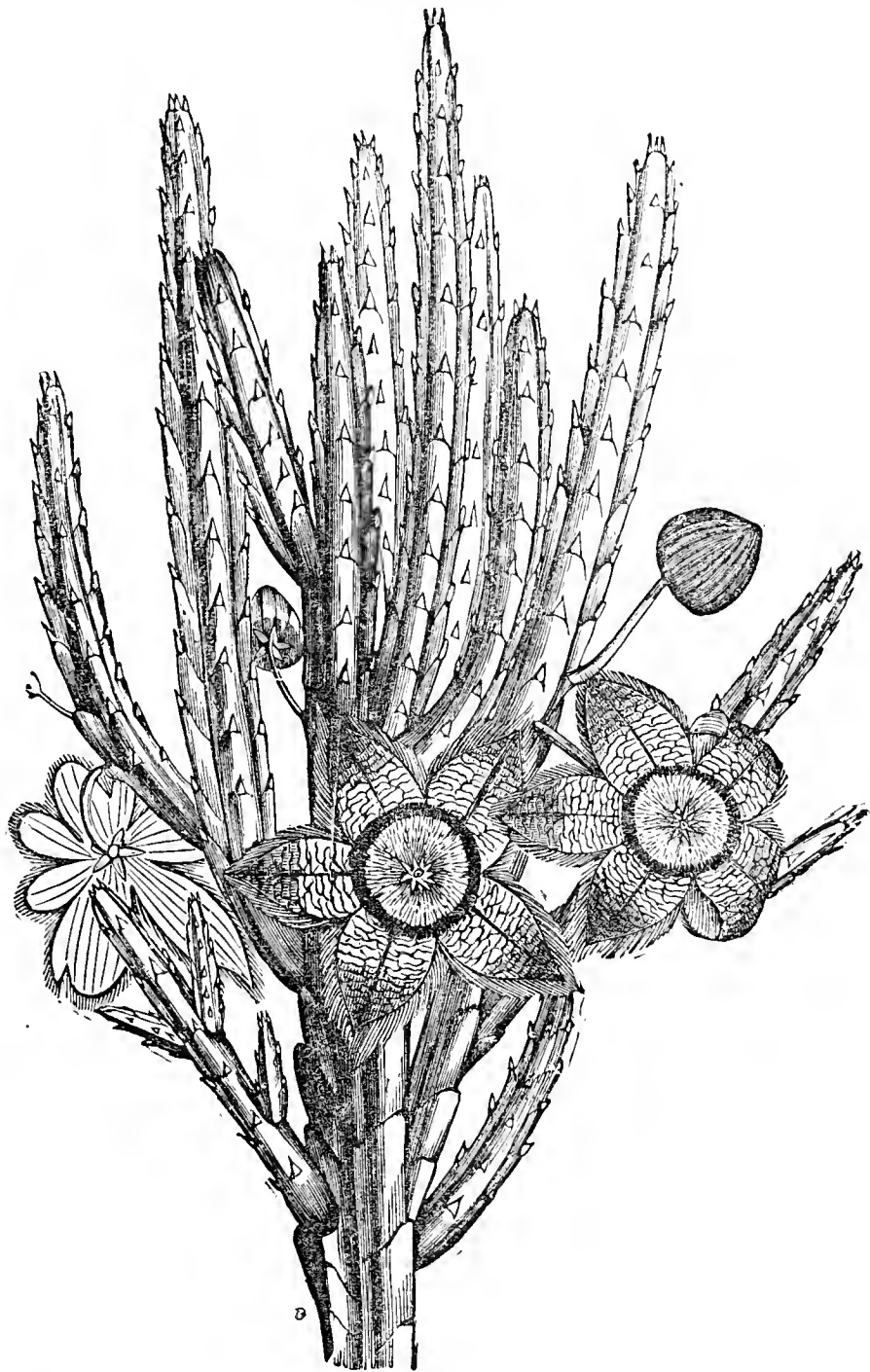


Fig. 112.—*Stapelia variegata*.

corolla. The lobes are ovate-acute, fringed on the margins with clavate hairs, the colour being reddish purple. 1799.

S. polita.—This is a charming little species belonging to Haworth's section Duvalia. Stems reclinate, six-angled and toothed; angles obtuse, furnished with long spreading teeth, with an additional minute one on each side at their base. Flowers two to four. Corolla five-lobed; segments ovate-acuminate; colour brownish purple; margins furnished near the base with long blackish purple hairs.

S. hystrix.—A beautiful species of recent introduction. The stems are freely branched, slightly glaucous, five-angled; angles obtuse, furnished with spreading teeth. Flowers mostly produced in pairs. Corolla spreading five-lobed; segments ovate-acuminate, recurved at the points; ground colour pale yellow, transversely banded with short lines of reddish purple; the lobes thickly studded with small erect fleshy points, which are also tipped with the same colour. S. E. Africa. 1869.—W. G. T.

SUMMARY OF WEATHER OBSERVATIONS AT HODSOCK PRIORY, NEAR WORKSOP, NOTTS, FOR MAY.—Total duration of sunshine in the month, 291.2 hours, or 42 per cent. of possible duration; there were five sunless days. Total rainfall, 0.84 inch; rain fell on ten days. Mean temperature of month, 51.5°. Maximum on the 11th, 77.0°; minimum on the 27th, 30.7°; maximum in sun on the 11th, 127.1°;

minimum on grass on 27th, 26.1°. Warmest day the 11th; coldest day the 1st. Mean temperature of the air at 9 A.M., 54.1°; mean temperature of soil 1 foot deep, 52.5°; nights below 32° in shade, 1; on grass, 8. Wind principally from W. to S.W. Temperature about the average, and similar to last three years. Rain less than in any May since 1876, and less than in any month since April, 1881; the greater part of what fell came in the first week. Sunshine more than in the same month last year, but more than in the two previous years. The country was getting rather dry, and rain wanted at the end of the month. Queen wasps very plentiful.—J. MALLENDER.

GATHERING FRUIT.

In all gardens, especially where many small fruits are grown, much time is occupied at this season in gathering fruit. It is work which will permit no delay, and we often feel annoyed, when other operations are pressing, that we have to turn all hands into the Strawberry, Currant, and Raspberry quarters day after day and in the best of weather. The latter is a point of the greatest importance, and cannot be too emphatically stated at the outset. There are many good housewives who buy quantities of fruit, boil their jam the right time, put in the requisite quantity of sugar, and yet they cannot get it to thicken properly or keep for any length of time without fermenting or moulding. All this in nine cases out of ten is caused by the fruit being gathered when wet and not being properly dried before preserving. Fruit bought in markets may often have been wet when gathered without buyers knowing it, and it will only be indicated or detected when the jam becomes bad; but in private gardens, where the fruit should always be gathered and taken direct to the preserving quarters, any loss through gathering it in a wet condition should never occur. Fruit gathered and immediately used for tarts is often collected in a wet state, and there is no help for this, as the demand for fruit for this purpose comes to us on wet days as well as on dry ones; but little or no harm results from this, as, unless the fruit has been wet for a long time, the flavour does not suffer. Raspberries are the worst fruit to deal with when wet, as they absorb so much water.

In all cases where the fruit can be preserved without having to be taken a distance, it is best to allow it to become quite ripe; but when it has to be carted, sent by rail, or carried in any way some miles, it is an advantage to gather it before it becomes "dead ripe." When it is well coloured but firm is the best condition of all to gather fruit for transit. Strawberries, Raspberries, and Red and White Currants, which are all very juicy when quite ripe, should in that case be gathered and placed in trays or dishes, which will prevent any of the juice being lost. Gooseberries and Black Currants will do in baskets. As a rule the morning is the best time to gather small fruits, and in market gardens much of it has to be gathered with the dew on it; but in private gardens, and in all cases where there is no particular reason for gathering it so early, none should be touched until the dew has evaporated. For this reason it is seldom that we can gather fruit before breakfast, but from nine o'clock until one or two o'clock we gather large quantities. Punnets, small baskets of various sorts, and 6-inch flower pots are all suitable in which to collect small fruits, to be emptied at the ends of the quarters into larger receptacles. We have never any call for a statement of the quantities of fruit collected and sent to the mansion during the season, but this does not prevent us booking every pound or quart of it, as I like to compare one season's quantity with another, and the dates of gathering; and I would advise all to keep a similar account, whether their employers may wish to see it or not.

All Strawberries, Black Currants, and Raspberries for preserving should be gathered without the stems, and so should Black Currants, the stems only being required on when gathered for dessert. When the fruit is gathered clean and carefully it saves much work in the kitchen. As a rule it is much better to go over the quarters frequently, say every alternate day in the ripening season, to collect it fresh and good, than to allow a large quantity to ripen and then make a large gathering. In this case much of it may be over-ripe, and make an unprofitable mixture with that less ripe.

Plums, whether on standard or wall trees, should be gathered before any decay commences, or just when they are soft all through and on both sides. The same remarks apply to Peaches, Nectarines, and Apricots, and there should always be a decided objection to any one pressing their fingers round these to feel if they are ripe. Many fine fruits are damaged in this way. The best way of testing them is to pull them gently forward; if they come away freely from the footstalk they are ripe, if not leave them. With these, as with all other fruits, it is of the utmost importance that they be gathered when quite dry and sound.—A KITCHEN GARDENER.

AUSTRALIAN HORTICULTURE.—In New South Wales the flower garden is more readily and successfully managed than in England,

although in the more elevated regions of the Colony the more tender kinds of plants have to be protected from the effects of frost at night. Every description of garden flower known in the United Kingdom thrives in the most luxuriant manner; the common Scarlet Pelargonium frequently attaining the proportions of a large bush, and blossoming the greater part of the year. The Sweetbriar, if allowed to run wild, becomes a kind of horticultural pest, overrunning the garden in every direction. In shady positions Violets grow as readily as in English woods, losing none of the fragrance which have rendered them such universal favourites. Roses and Camellias are abundant, especially the latter, bouquets of which, consisting each of about a dozen large beautiful flowers, are hawked about the Sydney streets during the season at the price of 1s. each.

THE ONION MAGGOT.

THE attack of the maggot of the Onion fly (*Anthomyia Ceparum*) has caused great havoc for many years, and nearly all methods of "remedy" have failed. Once the bed is attacked the Onions decay and the leaves turn yellow. All the Onions thus attacked should be at once lifted from the bed and destroyed. The earth should be attached to the bulb, and a knife is the best thing to use. It should be put under the bulb of the Onion, and the earth around the bulb lifted. If the Onion is only pulled up it is very probable that the rotten portion will remain in the ground, and that the maggot will stay there and develop into a mischievous egg-laying fly. This seems to be the only remedy once the Onion bed is attacked. The Onions must be lifted, and with the maggot in, then destroyed by burning. They must not be pulled and thrown on the path, for that is useless. After the attack all kinds of dressings are useless, and Miss Ormerod told me only last week that she found the fly that lays the eggs as lively as possible, and laying eggs in a crop covered with a dressing of soot. Before an attack a dressing of paraffin and water has been known to ward off an attack. Here it is believed that the efficacy of the dressing lies in the fact that the smell of the Onion crop is neutralised by the stronger smell of the dressing. It is well known that insects are attracted to their favourite crops by the smell, and attack frequently follows any thinning-out of the crop. This is not only the case with Onions, but also especially with Carrots, and in both cases paraffin (a wineglassful to a gallon of water) acts as a preventive by giving the crop an unattractive smell. The best preventive for the Onion crop is to sow the Onions in drills, and when the crop is young slightly earth them up. Unless the fly can get to the bulb, and there lay its eggs, it can do no damage, and if the drill is carefully earthed up the bulb of the Onion is protected during the time of attack. For nearly all crops a good preventive preparation of the land is a dressing of spent gas lime. This is a capital thing, and should be put on in the autumn and dug or ploughed in. If used fresh from the gasworks it must be put in when no crop is in, but if allowed to stand and lose its causticity it is perfectly harmless. It is a good thing, used caustic and fresh, to clear land of wireworm. It will kill nearly everything, but the earth soon destroys its causticity, and then in the form of gypsum it is a valuable manure.—HENRY F. MOORE, *Frome*.

CORNISH HORTICULTURE.

It now remains for me to make a few remarks respecting forcing flowers for market or other purposes. Forcing plants into flower is a phase of horticulture which has been for a long time practised. It is only within the past comparatively few years that it has become a matter of almost national importance, and that competition has become so keen and to such an extent which it has evidently now assumed. The number of persons of both sexes employed in the various departments of "flower-farming," even in this country, to say nothing of the continental ones, probably number several thousands. There is a much-hackneyed saying to the effect that where one man will live another would starve. The success of the former individual does not, perhaps, wholly rest on his being the more industrious, for ingenuity often gains half the battle. Knowing what is wanted and when it is wanted are both matters of great importance. To get a favourite flower in bloom two or three weeks before anyone else, and to be the first in the market with it, makes a great difference in the favour of the grower.

The plants most generally forced are Arum Lily (*Richardia æthiopica*), Belladonna Lily, Deutzia, Lily of the Valley, and Astilbe (*Spiræa japonica*). Large quantities of Arum Lily tubers are procured from various parts of this country and from the continent every year by the Cornish growers. This handsome semi-aquatic thrives with astonishing success in the open air, even through the severest of winters. It is grown in comparatively small pots, and forcing commences during winter, the roots being taken from the open ground, potted, and placed in a gentle heat in batches from early winter right on until the out-of-door plants commence to show flower, which is generally during April. One important item in the culture of this fine plant, and which is frequently overlooked, is that it can hardly have too much water when forcing; the soil in which it is grown may be kept constantly thoroughly saturated. Another consideration well worth mentioning is that the plant should not be overpotted, because when growing in a rich compost and in large pots the ends of the cultivator will in all probability be balked in securing little other than a foliaceous growth and a superabundance of large roots. For forcing, pots about 6 inches in diameter at the top will be found quite large enough. Gradual and gentle forcing is also very needful, as all sudden changes or a great heat will prove fatal to success.

Various named sorts of Narcissi are largely grown. The earliest one is, of course, the Paper White, which belongs to the Polyanthus group. It is obtained in bloom in the early part of winter, throughout which season it continues to produce its pure white and fragrant flowers. It requires only a gentle heat to start the bulbs into growth, and can be had early in the

season by growing it in an unheated structure, such as a frame or conservatory. Next comes the charming Poet's Narcissus (*N. poeticus*), with its pure white perianth and conspicuous red corona. This can be obtained in flower as early as February if placed in a warm atmosphere. I understand that Mr. T. S. Ware has several varieties, which he states will flower quite five or six weeks before the typical species. Whether this advantage would hold good to the same extent when grown under glass I am not in a position to state, but should be inclined to doubt it. A favourite with the growers of Scilly is the Orange Phoenix, one of the numerous varieties of *Narcissus incomparabilis*. It would be rash perhaps to call any one form the handsomest of all *Narcissi*, but the one just named certainly ranks very high among the best. The soft and delicate orange of the corona, and the sulphur colour of the very double perianth, are only secured by growing it under glass, with or without heat. When growing in the open air, exposed to all weather, and in a heavy soil, the corona assumes a very coarse orange tint, while the perianth is of an exceedingly dirty yellowish colour. There being plenty of substance in the flower, and as it lasts in beauty for a considerable time, it has been cultivated with much pecuniary success at Scilly, where it is grown by the acre, and the bulbs ploughed in something after the style of Potatoes. The flowers are packed in small baskets, and thus forwarded to various metropolitan and other markets.

The Lily of the Valley, although a "paying plant," does not seem to be forced to any great extent in Cornwall; and the methods there employed in its indoor culture are not likely to insure very much success with it. As a general rule, the crowns are set in boxes of sand, placed in a strong heat, and watered when the soil gets rather dry, the house having at the same time a dry or comparatively dry atmosphere. This method of cultivation is altogether an erroneous one. Success can only be obtained by placing the boxes containing the crowns over a properly constructed hot-water tank, and then closing the opening of the same perfectly close. The soil must at all times be completely saturated with water, and the atmosphere of the house kept as moist as possible. A bottom heat of from 95° to 100° may be maintained throughout. The boxes can be removed from the beds in about four or five weeks from the time when they were first placed therein. I have seen boxes having Lily of the Valley crowns with icicles hanging transferred at once into a moist bottom heat of nearly 100°, and with every success. The English three-year-old crowns of the German strain are far more likely to produce flowers before Christmas than those imported from Germany direct or the ordinary native sort; the experiences of other people may, however, be different.

The Belladonna Lily (*Amaryllis Belladonna*) is also grown extensively in various parts of Cornwall, but more especially at Scilly. Its large sweet-scented funnel-shaped blooms are extremely handsome, and the only drawback to the entire plant is that flowers and leaves are produced at entirely different seasons of the year—the former in autumn, and the latter in spring. It varies much in its colours, from nearly quite white to red, and sometimes two or three shades are produced in one flower. As it flowers in the autumn only, forcing is foreign to its nature; the supply, therefore, is wholly obtained from plants grown in the open air. In purchasing roots, large and solid ones only should be selected, and these should be in the ground before the end of August, or flowers will not be forthcoming until the following season. In cold districts it will be necessary to cover the roots with plenty of litter, but success will be impossible on a damp heavy soil, in whatever district.

Both *Dentzias* and *Spiræa japonica* are somewhat extensively grown for market purposes, the plants being usually imported from Germany; and the Ghent strain of *Azaleas* has been gradually proving to be fairly remunerative.

With the present article I conclude my brief sketch of Cornish horticulture in its several phases. I am quite confident that the resources of this county are vast and varied, and these, if backed up by the various elementary principles which are so essential to success in all branches of every industry, would serve to constitute Cornwall one of the richest and most important counties in England.—WILLIAM ROBERTS.

GRAPES SCALDING.

THE time is approaching when the scalding season may be said to be at its height, indeed it has begun already; so a word on the subject may not be unwelcome to any of your numerous readers who are in the position of amateurs beginning Grape culture, and who may, perhaps, be saved from various mishaps in their practice by taking note of the advice on all questions concerning the Vine that is tendered by various writers who have learned by experience how many difficulties attend Vine culture.

Scalding generally may be looked for when the Grapes begin to stone. Examine a berry or two, and if signs of stoning are seen keep the houses cool. If this is not done, especially in the case of Lady Downe's, serious damage will result if the weather be hot and sunny. The moment the first scalded berry is seen, ventilate at the top and side, and open the doors too if the temperature cannot be kept down.

The foliage should be allowed to cover every inch of the roof, so that the direct rays of the sun may be kept from striking on the bunches. Rather have an excess of foliage for the fortnight or so that the danger lasts than lose a lot of berries by the scalding that results from the sun striking the berries. As soon as the first signs of colouring are seen the amount of air given may be reduced, and gradually the temperature may be increased, till at the end of a week from the time the first coloured berry is seen the Vines may be having a good temperature, which will push them on and enable the grower to obtain well-finished Grapes.

By this means, however, endeavour to attain this increased temperature with a certain amount of air. Some amateurs known to the

writer have been found stewing their Vines in an atmosphere more like a vapour bath than anything else, the result being thin attenuated foliage and a general debility that told a very decided tale the following season—a tale of unfruitfulness not at all encouraging to the cultivator. Grape-scalding is essentially one evil in Vine culture that can be almost entirely prevented if the means are used in time.—S.

MITRARIA COCCINEA.

MITRARIA COCCINEA has the merit of being the only hardy plant of its order yet discovered. We do not, however, use the term "hardy" in its most extended sense; in very severe winters some protection would doubtless be necessary.

The habit and general appearance of the *Mitraria* will be sufficiently understood by a reference to our figure. Its stems are unusually slender, branched, and, in specimens of sufficient age, reach the height of about 3 feet. The foliage is small, and somewhat brittle and succulent, with a number of short hairs scattered over its upper surface. The flowers are numerous, and produced singly from the axil of the leaves, on footstalks 2 inches long, with a ventricose corolla, from the mouth of



Fig. 113.—*Mitraria coccinea*

which protrudes the long slender style. Its season of blooming extends from May to the end of June.

The soil most suitable for its cultivation is a mixture of good turfy peat and loam, in the proportion of three parts of the former to one of the latter. Where this is not at hand any soil containing a tolerably large proportion of leaf mould may be used, avoiding those of a poor sandy character, as well as pure loams deficient in decayed vegetable matter. When grown out of doors it must be planted under a north wall, or screened from the sun's influence by a fence, for it will not flourish except in the shade. Until its hardiness in the northern and eastern counties has been more fully tested we would not recommend its exposure during the winter months without some protection. A small handglass or a large inverted flower pot will offer a ready means of warding-off the effects of frost; and to these may be joined, as an auxiliary, a small heap of coal ashes. Where there is the convenience of a cold frame, the roots may be potted in the autumn and preserved with less risk.

If grown as a pot-plant it will be necessary to provide it with a cool shady window; and an arid atmosphere must at all times be avoided. Especial attention must be paid to the drainage, for the soil in which it appears to succeed best being of a retentive nature, too great

an excess of moisture must be guarded against by a good supply of broken crocks.

Gesneraceous plants, as well as all others with tuberous roots, usually require to be kept quite dry when at rest; but with the *Mitraria* a somewhat different treatment will be necessary, for its fibrous roots will not bear the complete withdrawal of moisture. It will, therefore, need an occasional watering during the winter months, though the soil must be kept only in a slightly moistened condition, and the plant should be placed in a cool situation—by no means in a warm apartment.

Its propagation presents no greater difficulties than that of the other plants of its order. The easiest mode of increasing it is by division of the roots in spring; but cuttings may also be taken at any time during the spring and summer months, and struck in any light vegetable soil under a bell glass or tumbler.

It is a native of the Island of Chiloe, a circumstance which will explain both its comparative hardiness and its preference for a cool moist atmosphere and partial shade.—W. T.

SYRINGING VINES IN BLOOM.

THIS has ever appeared to the writer a practice to be condemned when used with the idea of getting a good set. If any doubt exists in regard to the setting of any particular variety of Grape, a touch with a feather is much better; even a shake of the rods once or twice a day in the passing is a very effectual means of procuring a set. But a feather (ostrich if possible) tied to the end of a long stick, so that every bunch can be reached easily, is the best. When the Grapes come into bloom dust each bunch very lightly with the feather, and if every bunch is attended to in this way when it is in flower, it will be very strange if a grand set does not repay for the trouble.

Syringing Grapes the writer never practises, except perhaps for such varieties as Alicantes and Lady Downe's, which are the better for a dash with the syringe just before beginning to thin them, as they have a great amount of *debris* of their flowers always adhering among their berries. Great care should be taken that the water used be quite clean.

Occasionally when red spider has happened to get a hold in the early vineries the syringe has been used, but only as a last resource.—S.



THERE appears to be every probability of the INTERNATIONAL FORESTRY EXHIBITION AT EDINBURGH being very successful as regards the number of the exhibits. The Indian collection of wood alone is said to contain about 700 specimens.

— MR. DAVID HOUSTON is now delivering, on Wednesday afternoons, at the Crystal Palace, a series of ten lectures on our NATIVE TREES AND SHRUBS—a subject of great interest, and one which is comparatively rarely treated.

— IT is stated in the Report of the Metropolitan Board of Works that the LONDON PARKS AND COMMONS under their control amount to 1769 acres, the cost of managing which during the last year was £17,803.

— MR. T. LAXTON, Bedford, sends us flowers of his INVINCIBLE CARMINE SWEET PEA, which was certificated by the Royal Horticultural Society last year. It is described as the result of a cross between Invincible Scarlet and Invincible Black, and is much the finest we have seen, both in size of flowers and richness of colour. As the name indicates it is of a peculiarly deep carmine tint, quite distinct, the keel being lighter.

— THE BEDFORDSHIRE HORTICULTURAL SOCIETY'S first show will be held on July 16th in a field on the Bromham Road, Bedford. 180 classes are provided for plants, flowers, fruit, and vegetables, the prizes being mostly of small amount, ranging from £2 to 1s.

— MR. HARDING in the following note refers to the WEATHER AND THE CROPS NEAR PETERBOROUGH, and it indicates that the late rains, that were so welcome and beneficial in London and other places, were not general:—"This has been the driest season as yet since I have been here, nearly seven years. Very little rain has fallen during the last six weeks. Hay crops light. William I. Peas were picked on

a border the 31st of May, and a full picking of the same variety on open quarters ten days later. Apricots, Strawberries, and Currants have good crops, but all other fruit is scanty, although blossom was abundant."

— THE RICHMOND HORTICULTURAL SOCIETY'S SHOW is announced to be held in Old Deer Park on Thursday, June 26th. The usual liberal provision is made for plants, flowers, fruit, and vegetables, a large number of special prizes being also offered by the patrons and supporters of the Society.

— "J. R." finds the TROPHY TOMATO one of the best varieties for outdoor culture. He has tried several of the most recommended sorts, and now solely relies upon this for outdoor supplies.

— THE ODDFELLOWS' FLOWER SHOW AT FROME, SOMERSETSHIRE, is announced for August the 4th, when numerous prizes of a useful but miscellaneous character, such as books, glass ware, tea, coal, grocery, umbrellas, hams, hats, drapery, shoulder of mutton, &c. In connection with the Show three prizes are offered by Miss Ormerod for "the best specimens of food plants injured by insects, accompanied by samples of the insects injuring them, and a short written account of the insect attack and of the means of remedy or prevention adopted."

— GLADIOLUS BYZANTINUS is a valuable early and free-flowering species, which at this time of year is most attractive in borders. Its rich crimson-purple flowers are produced in great numbers, the scapes being densely clustered on strong roots. Any border that is not too damp suits it well.

— ARISTEA CAPITATA.—Is this fine old plant in cultivation now? It was a favourite with me many years ago, but I have quite lost sight of it. The flowers are of the most brilliant blue, with spreading petals, and are borne two or three dozen together, in rings on a tall spike. The foliage is flag-like. I believe it was one of Thunberg's finds, and was by him named *Moræa cærulea*.—L. W.

— THE BIRMINGHAM AND MIDLAND COUNTIES CHRYSANTHEMUM EXHIBITION is fixed for November 19th and 20th. The usual liberal prizes are offered, including the £10 first prize for the best forty-eight Chrysanthemum blooms, twenty-four incurved, and the same number of Japanese. Several special prizes are also contributed by Mr. Hans Niemand, Mr. T. B. Thomson, Messrs. Pope & Son, Messrs. Richard Smith & Co., and Mr. J. Tomkins.

— PSEUDOLARIX KÆMPFERI, of which dried specimens were shown at the last meeting of the Royal Horticultural Society's Scientific Committee, is one of the most handsome of Japanese Conifers, and it is regrettable that it continues so scarce in gardens. A beautiful example of it may be seen in the Royal Gardens, Kew, near the private path leading to the Curator's house.

— MR. JOHN FORBES, Buccleuch Nurseries, Hawick, N.B., sends us "a GATHERING OF PANSIES from a collection of named sorts," which comprise some lovely blooms, large, beautifully formed, richly and diversely coloured. The shades of violet, purple, crimson, maroon, orange, gold, and yellow are charming. The blooms are indeed some of the best we have seen.

— "J. J., Lancashire," sends us a small growth of DENDROBIUM PIERARDI, which has flowers of much larger size than we usually see them. They are 2½ inches in diameter, with lips over 1½ inch long. It is very handsome whether a variety or due to good culture. The same correspondent also mentions that "D. Pierardi latifolium, with forty-eight on one growth, is much admired," as undoubtedly it deserves.

— THE schedule of the BROCKHAM AMATEUR ROSE ASSOCIATION announces that the nineteenth annual Exhibition will be held at Broome Park on Monday, July 7th, when, in addition to prizes in thirteen classes, the value of which is not stated, the National Rose Society's gold medal and two silver medals will be competed for, the first-named being the leading prize in a class for six blooms of one variety, and the others for the best Hybrid Perpetual, Tea, or Noisette blooms. The schedule also gives a list of the eighteen previous shows, where they were held, and the amount of gate money taken, a list of Rose show fixtures for the present season, the names of the too-much-alike Roses, and the results of the Rose elections in this Journal of 1882 and 1883. From the financial report it appears that the Association has a favourable balance of £14, and is therefore in a satisfactory condition.

— MR. STEPHEN CASTLE, The Vineyard, West Lynn, writes : "By parcels post I send three trusses of the double pink variegated PELARGONIUM CHELSEA GEM. I cannot think how it is that this very beautiful useful variety is so seldom noted. I have a row in 48-pots in a cool vinery, and they have been covered with blooms the past two months, and are now as full as ever. I am very partial to this plant, the foliage being as striking as the flowers. It is of a very robust habit, making a fine exhibition plant. I have them in flower from thumb pots upwards in good condition. Fancy a row of five dozen in full beauty ! I have never failed to strike every cutting of this variety. It is also good for bedding." The variety is certainly a beautiful one, the trusses large, and the colour a bright pure pink. The leaves are neatly formed and evenly margined with white.

— THE same correspondent finds "LOBELIA EBOR very good indeed, the colour being a fine dark blue, and very true from seed. Great stress is always laid upon raising Lobelias from cuttings, which is right when cuttings can be had in plenty, but for my own part I would as soon have a batch of seedlings if the strain is good. I think great credit is due to Messrs. Cannell & Sons for sending out so true and good a sample of seed."

— PART 5 of the "ILLUSTRATED DICTIONARY OF GARDENING" continues the subjects from Asmina to Aubergine, with several woodcuts. Very full lists of Aspidiums and Aspleniums are given, with figures of the most distinct species.

— THE MELON, CHALFONT PARK FAVOURITE, shown by Mr. N. Herrin at Kensington last week, is a variety of some promise. It is true that Melons are now so numerous that it is not easy to obtain one that is really distinct and meritorious enough for the honour of a certificate, but the one in question possesses some qualities that recommend it to notice. In the first place the fruit is of moderate size, round, even, and beautifully netted—no mean recommendation. In the next the flesh is of good depth, and when in its best condition of a rich flavour. The juice of the fruit tasted by the members of the Committee was, however, found to be a little thin. A good indication of its merits was afforded at the Fruit and Vegetable Show held at Kensington on the 27th ult., when in a class of twenty-one exhibitors Mr. Herrin was placed first with a good fruit of this variety.

— CALIFORNIAN CONIFERÆ.—The forests frequently extend to the river banks, and are made up of many species, coniferous and deciduous trees being everywhere found in proximity. Among the cone-bearing trees, the Yellow Pine, *Pinus ponderosa*, the Incense Cedar, *Libocedrus decurrens*, and the grand Silver Fir, *Picea grandis*, are the most frequently seen on the valley floor. There are also noble specimens of the Douglas Spruce, *Abies Douglasii*, and Sugar Pine, *Pinus Lambertiana*, though these trees seem to prefer a higher latitude, and are found in abundance on the slopes and mountains about the valley. On the heights may be found, in addition, Jeffrey's Pine, *Pinus Jeffreyi*, the remarkable Tamarack Pine, *Pinus contorta*, the great forests of the lovely Silver Fir, *Picea amabilis*, the most regularly beautiful Conifer of the Sierras. Many people have an idea that the Sequoia is found at Yosemite. This is a mistake, for though the Big Tree, *Sequoia gigantea*, is a habitant of the Sierras, the nearest trees are found at the Mariposa Grove, thirty miles distant, with the exception of some isolated specimens on the Big Oak Flat road ; while the Redwood, *Sequoia sempervivens*, is confined exclusively to the coast range. — (*Vick's Magazine*.)

— "THE EUROPEAN BUTTERFLIES AND MOTHS," by W. F. Kirby, is the title of a new serial work just commenced by Messrs. Cassell & Co. It is to be issued monthly, the first part containing eight pages of letterpress and two plates, one being coloured and representing several familiar species of butterflies.

— THE PLAGUE OF CATERPILLARS IN SOUTH WALES.—A Cardiff correspondent writes that the great swarms of caterpillars which have suddenly appeared on the mountains in South Wales have produced an extraordinary sensation in that part of the country. The insects measure about 1½ inch in length, are of a brown colour with black stripes. The head, which is furnished with a pair of mandibles, is of a dark yellow colour. The insects are remarkably lively, and eat all the green herbage in the vicinity. Many of the farmers have fired the mountains with the view of destroying the insects, but the visitation is too wide-spread to allow of this expedient succeeding. The whole of the mountains lying

between the greater Rhonda and Maesteg, a distance of twelve miles, are literally swarming with the insects, as well as the ranges of mountains and valleys intervening. Millions of the insects are found buried in the peat holes, gutters, and mountain brooks in some of the localities. The crows feed on them, and it is feared that this will result in the pest being carried to the fertile valleys, and will there attack the young grain. Anxiety is felt lest the insectivorous pests should get into the wool of the sheep, and the flocks are being driven from the mountains to other districts.

NOTES AT KEW.

IN May and June, provided the weather be not excessively dry, the Royal Gardens at Kew can be seen to better advantage than at any other period of the year, and the people generally appear to be aware of this fact, for the 84,000 visitors there on Whit Monday were certainly not all botanists or gardeners. That so large a number of persons should elect to spend their holiday there is also a satisfactory indication of the increasing appreciation of beautiful gardens, for no attraction of the essentially popular character, not even a band, is provided or needed. The visitors are apparently content with admiring the bright handsome or curious flowers, the fresh green foliage of the trees, and in enjoying the varied walks with the park-like scenery of the pleasure grounds. Anyone can, indeed, pass a pleasant afternoon there at this time of year ; but the plant-lover will find abundance to interest him, and one of the first places he should direct his steps to is

THE ROCKERY—This is now becoming well furnished, and the appearance of newness being worn off, it is much more natural and pleasing. Especially prominent on a high mound near the northern entrance are some hundreds of Foxgloves, self-sown, of varied colours, and forming a little forest of flower stems that have a charming effect from many positions. Judiciously employed, Foxgloves are most valuable plants in gardens, particularly in such positions as the above—near woodland drives, in shrubberies, or wherever their pinnacles of flowers can be seen rising above other vegetation. On the Kew rockery it is undoubtedly the happiest feature at the present time. Worthy of particular notice also is a fine clump of *Aubrietia Hendersoni*, which has been covered with large deep purple flowers for the past three months, and seems likely to continue so for some time to come. It is not only one of the largest flowered varieties, but its colour is rich and constant, and the floriferous character is an especial recommendation. Why old comparatively insignificant forms of *Aubrietia deltoidea* should be grown for spring bedding, when so great an improvement as this can be obtained, it is hard to understand. The graceful dwarf *Campanula pulla*, which occupies a spacious nook, will soon be in its best condition, the small pendulous purple bells being fast expanding. Of the small-growing *Campanulas* this deserves more attention than it has yet received in gardens, especially where a rockery is prized. Hosts of other plants demand a note, but their claims must be unrecognised at present.

The herbaceous ground is similarly filled with attractions, nearly all the natural orders being represented by abundant flowers. The *Ranunculus* and Poppy relatives still contribute largely, amongst the latter being the massive rich *Papaver orientale* and the diminutive but pretty yellow *P. nudicaule*. The last-named, with its varieties *miniaturum* (deep orange) and *album* (white), forms a trio of attractive little plants that are invariably much admired. It is a great stride from these to the Labiate family, but there are found the next effective flowers amongst the *Anchusas* and *Echiums*. *E. italicum* is lovely now with hundreds of its brilliant blue flowers, forming quite a floral cone. The Iris garden is in excellent condition, and the plants seem quite satisfied with their position, judging by the vigorous manner in which they are growing and flowering. The charming Iris *neglecta* is flowering profusely, its blue-tinted and varied blooms. The strangely coloured *I. squalens* is attractive. *I. variegata* and many others prove how beautiful these plants are when well grown. To insure their success, however, well-prepared borders are necessary ; and though in few gardens, perhaps, could such elaborate preparation be made as at Kew, yet there is little difficulty in providing a well-drained position and a good depth of soil. Except that valuable town plant *Iris germanica* and its varieties, few of the Irises receive the attention they so well deserve.

The ferneries are always worth a visit, and an improvement quite recently effected in the cool house is likely to increase the health and beauty of the Filmy Ferns considerably. Everyone admires those delicate little gems of the *Hymenophyllum* and *Trichomanes* genera, and the Kew collection is so rich in rare

and beautiful species that it has long been a subject of regret that they were not better provided for. During many years they have been grown in small cases in the tropical house, and despite the best care they have never been quite satisfactory. Several causes have probably contributed to this state of affairs; but the most important are the excessive heat on that side of the house which is next to the boiler, and the other is that where near a door which, being frequently opened, admitted currents of dry or cold air. Both these would have a tendency to render the plants unduly dry at times, and such extremes would effectually prevent their successful progress. A much better site has now been chosen, and good hopes may be entertained of soon seeing the collection in most vigorous health. A wall case has been placed along one side of the cool vinery, with a slate back and moveable glass sashes in front. Some of the Ferns are planted out at the base of this or between those growing upon portions of Tree Fern stems, and no doubt the case will be quickly filled. At present, however, the slate back has a rather bare appearance; and a small portion, which has been covered with peat in a wire trellis so that small Ferns could be planted on it, is much preferable, though there is some difficulty about extending this the whole length owing to the space it occupies.

In the Orchid house cocoa-nut fibre is being employed as a moisture-holding material upon the side shelves, and it looks both neat and pleasing. A slightly sloping bank is formed, in which are placed inverted pots, the bases of which are just level with the surface of the fibre. The Orchids are stood upon these, and as the supporting pots are of different sizes they can be readily and suitably arranged. The choice of material for this purpose is a matter of importance; and though many different sorts have been tried by Orchid growers, I have not seen anything at once so neat and so likely to answer the purpose as this fibre. Small coal and coke are sometimes used, but they have a sombre appearance. The ordinary white spar is the prettiest when clean, but it soon becomes green and dirty; pebble stones are also suitable, but the fibre is preferable in all respects.

The temperate house is now, as indeed it always is, very beautiful, not with a great display of flowers, but all the plants seem to be so healthy, thrifty, and handsome, the general condition of the paths and borders indicate so much careful attention, that it is quite refreshing. The grand Dicksonias with magnificent crowns of fronds, the gigantic Araucarias, and the hosts of peculiar New Holland plants have a more than ordinary interest. There is, however, one plant that is particularly worthy of note, and that is a hybrid *Streptocarpus* that is likely to become a great favourite in gardens. It has been obtained by a cross between the well-known *S. floribundus* and *S. parviflorus*, and is strikingly intermediate in characters. *S. floribundus* has large purplish mauve flowers, produced in moderate numbers; *S. parviflorus* has small white flowers, which are borne most profusely, four to six on a spike, and sometimes twenty spikes to a root. In the hybrid this floriferous character has been preserved, the flowers being, however, larger than those of *S. parviflorus*, and the colour of *S. floribundus*. In pans the plants are charming, and with such abundant flowers are invaluable.—VISITOR.

VINES BLEEDING.

WITHOUT entering into any discussion as to the cause of Vines bleeding I wish to add a few observations which I think bear upon the subject. About fifteen months ago some mischievous person wounded the large clear stem of a Holly tree near our house. It appeared to have been done with the spike end of a pick, the wood as well as the bark being much injured. The wound has never healed, but, on the contrary, has spread, both the wood and bark gradually decaying. Very rarely is it in a dry state, and it has been my almost daily business to note when it bleeds the most freely, and it is certainly not after heavy rains, but rather when the atmosphere is moist, or what we usually term good "growing" weather. The clearer the weather, whether during the winter or summer months, the less bleeding is to be observed. Whether this is owing to a greater evaporation from the leaves, or whether the much greater loss of sap during dull moist weather is due to the latter being more sap-attracting, I am unable to say. I am inclined to the latter theory, and believe the maintenance of a drier atmosphere (not necessarily with a lower temperature), will materially check bleeding in Vines. If the condition of the atmosphere does not affect the bleeding, how is it they (the Holly and Vines) vary so remarkably, one day bleeding profusely, the next day perhaps not at all?—W. IGGULDEN.

My first notes on this subject were plain, and I think the way "Justitia" asks for proof is unjustifiable. He has re-read his remarks and again fails to see that I used only his own words. The question why some Vines bleed and others do not in one house can be answered in many ways if all the Vines receive the same treatment and are of different varieties. Again, if all are of one variety they often differ in character.

The ground differs in quality and roots work differently, and there is a marked difference in the bunches or berries. Strong healthy Vines bleed because they are full of sap and the roots working in moisture. Weak Vines bleed from their inability to appropriate the excess of moisture.

Indiscriminate pruning is said to be the cause of bleeding in large and mixed vineries, as all the Vines are not in a fit state at one time. If the Vines have all perfected their fruit and this has been cut, the foliage having all fallen, no mistake can be made if all be done at once. The evil is what I stated, but certainly if no pruning be done no bleeding will occur. Vines bleed whether pruned early or late, and in many cases when the buds are quite dormant. Pruning is thus an evil; but not to prune would be a much greater evil.

To show "Justitia" and "Non-Believer" that I can stop bleeding at will, I offer to amputate a rod of any Vine at any stage of growth, and to heal the wound, and consequently stop the bleeding, in two applications with a simple substance (powdered alum), a trial of which I communicated to this Journal (page 195, vol. vi., March 8th, 1883), and it was copied into many other papers.

If "Non-Believer" and "Justitia" visit me there will be no puzzle nor alarm. I cannot see where the former borrows the information that I blame your contributors for my own folly. I gained a practical lesson, and that is something. If a crop was lost on the young Vines, the old ones seem to respond to make up for the loss. A few persons around here have come to see no Grapes, and were sadly disappointed, as such ought to be. Men should read more carefully, think more, be civil, and laugh less at others' misfortunes. I can show a last year's cane from a spur that carried a large bunch of Grapes last year, with fourteen bunches now growing, some being over 13 inches long. The old rod, which has been carried up in three years, has now twenty-four—that is, thirty-eight bunches altogether, on the shoot roof. They cost about 12s. a year for coal, so your readers may judge. As soon as the buds begin swelling stable manure is used, renewed, or added to as needed. A little fire is employed at night if the weather be frosty, and when the Vines are in bloom up to the setting and thinning. Except in very damp dull weather this is all the artificial heat they receive, except that a little rubbish is burned to expel damp.—J. E. WAITING, *Grange-over-Sands*.

THE ORANGE-COLOURED CESTRUM.

UNDER the popular name of Bastard Jasmine a large number of plants belonging to the Potato family are known, the scientific title assigned to them being *Cestrum*, from the Greek name for Betony; but, like many other classical designations, its application to the Bastard Jasmine seems to be purely arbitrary. These plants are close allies of the *Habrothamnus*, a much-esteemed greenhouse flowering plant, the value of which is fully appreciated wherever flowers are in great demand for cutting. In the majority of the *Cestrum*s, however, the prevailing colours are very different from their neighbours—mostly orange, yellow, or white—and being as free in growth and flowering as the others, they are equally deserving of a place in collections. The Orange-coloured Bastard Jasmine, *C. aurantiacum*, of which an illustration is given in fig. 114, is a particular favourite with those who know it, though they are by no means so numerous as might be expected, considering that the plant has been an inmate of English gardens for more than forty years. It is one of those neglected plants which have gradually been pushed out of sight by the swarms of newcomers that have in recent years been obtained from all parts of the world. In some old gardens where plants have long been prized examples of these may occasionally be seen, but there they remain; for notwithstanding the enterprise of nurserymen in introducing plants from foreign countries, they appear to think any old plant, however meritorious it may be, beneath their notice. Doubtless the public themselves have had something to do with this—there is such a craving, almost a craze, for anything new; and the fact that a plant has been in cultivation for half a century appears to deprive it of half its value in the eyes of many purchasers.

Cestrum aurantiacum should certainly be rescued from its obscurity, for as a greenhouse plant it is invariably admired when seen laden with its abundant trusses of orange-coloured flowers. It is, moreover, most easily grown, needing no special attention beyond providing a well-drained compost of turfy loam and well-decayed manure. The growth is strong and quick, and if the plant is trained to the roof of a house or a pillar, either of which positions is suitable, it will require slight pruning occasionally to keep it in bounds and to remove the weak and straggling shoots.—W.

FRUIT TREES—SUMMER PRUNING.

THE time has now arrived for this important work to be commenced, and in the interests of those whose experience in fruit culture is limited a few remarks on the subject may be of some assistance. At the outset it must be stated that the importance of the work cannot well be over-estimated, as on it depends to a certain extent the well-doing of not only the current year's crops but of that

of the succeeding year; which being the case, it behoves most gardeners to exercise care and judgment, at the same time dispelling all pre-conceived ideas that summer pruning consists only of shortening back the young shoots of all trees alike, and at one and the same time.

Peaches and Nectarines take the first place amongst stone fruits, both in regard to their value and as being the earliest to push into growth. If they have been properly attended to up to the present the trees will have been disbudded twice or thrice by this time, so that all that is necessary for the rest of the season will simply be to nail in or tie, as the case may be, all young shoots required for next

Plums, both wall-trained and pyramidal, I always think should be left till the last week in June; and when the crop is light, as is the case this year, and the trees in good health, it is advisable not to cut back the shoots too closely—indeed two-thirds of their length will be quite sufficient, the rest to be removed at the winter pruning.

Pears may be treated in much the same way, and as this differs somewhat from the orthodox plan, or, rather, that which is considered to be so, perhaps I may be allowed briefly to state my reasons for advocating it. Given a strong healthy tree of Pear or Plum, wall-trained or pyramidal, cut back all young shoots near to their base not required for the extension of the tree, and what is the result?



Fig. 114.—CESTRUM AURANTIACUM.

year's bearing as they advanced in growth; and we would here recommend that a space of fully 3 inches should intervene between each one. This will insure greater certainty of ripening the wood, and at the same time allow of sufficient room for the full development of the leaves, thereby producing strong and plump fruit buds for another season. Vigorous young shoots will frequently push lateral growths, which must never be allowed to extend, but be pinched back to the first leaf—i.e., on old and fully established trees; but with younger ones the case is entirely different, for then the main object in view is to allow them to fill their allotted space in the shortest possible time.

Apricots next demand attention, and all that is required to be done to these is merely to cut back all breastwood to three or four leaves, and to nail-in young shoots to fill up vacant spaces which have been created by older branches dying.

Simply this, that in nine cases out of ten many of the buds which should go to form flowering ones for the succeeding year will be forced into premature growth shortly after being subjected to this close cutting-back process; whereas, if they had only had two-thirds or thereabouts of their length cut off, the contrary would have been the case. Apples grown on the restriction system can also be treated in this way.

We now come to small fruits, but of these there are only two kinds requiring our notice—viz., Gooseberries and Currants, and of only red and white varieties, whilst of the first named only those trained to walls. Anyone who has not hitherto practised summer pruning as here advocated for Currants and Gooseberries would, I feel sure, after a first trial adopt the plan. The young shoots are cut back about the second or third week in June to within four or five leaves of their base, and it only remains to be said that you will be rewarded

by larger fruit and more of it than would be the case if they were treated only to the customary winter pruning.—H. J. H.

HISTORICAL JOTTINGS ON VEGETABLES.

THE CARROT.

A GLANCE at the history of the Carrot shows us the circumstance, noticeable in connection with other well-known vegetables, that its annals present a dark space, falling during the period when civilisation declined throughout Europe, after the downfall of the Roman empire. We find the Carrot is mentioned by several authors writing early in the Christian era, and then we have a long interval, until the Carrot reappears in books belonging to the reign of Queen Elizabeth. It is unlikely that the plant ever went out of cultivation, but where it was grown, and by whom chiefly, we do not know. There is no doubt, however, that the monks of the middle and dark ages grew many fruits and vegetables in their gardens with which the world generally had no acquaintance, and they have at least a title to be called the friends of horticulture, or its preservers, whatever may be said against their teaching and their morals.

The Carrot (*Daucus Carota*) is one of the plants in that rather extensive order, the Umbelliferae, which embraces a singular variety of species—some most wholesome, some as dangerously poisonous. It occurs wild in various parts of Britain, seemingly having a preference for chalky ground. When in bloom, owing to the shortness of the central stalks in the mass of umbels, there is a hollow in the centre of the flower head which has been compared to the nest of a bird, and within this is a crimson flower, the others surrounding it being whitish. A less common species (*D. maritima*), found upon the Cornish cliffs, has no crimson flowers, and leaves that are thicker, also less finely divided. In these wild plants is perceivable a tap-shaped root, which is white, but tough, and various methods have been tried in vain for centuries past, with the object of changing or "educating" our native species. Varieties have indeed been produced by the culture of the wild Carrot for generations, and large roots—white, yellow, or red—grown; but these had not the flavour of the garden Carrot. Yet that is really no distinct species; it is considered to have been developed from *D. Carota*, through influences of soil, climate, or culture, and some conjecture the early home of the Carrot was the Isle of Candia; at all events, good evidence points to the vicinity of Greece. Even in the days of Gerard people called the plant the "Candie Carrot," prompted to this possibly by Pliny's remark that the best plants were grown in Candia, or in Achaia he adds. Before his time Theophrastus had referred to the culture of the Carrot in Areadia, and he also commended the Spartan Carrots, which may have been a customary item in those vegetable broths that delighted and invigorated the hardy Greeks of that nationality. By the Romans the Carrot was cultivated during the Empire, introduced from Greece, and they again probably took this plant to Gaul, to Germany, if not also to Britain. Gerard remarks that he had been told the cultivated Carrot was found growing apparently wild upon mountains in Switzerland and Germany. By the Greek growers the fact was noted that the Carrot thrives in dry moderately rich soil, but several of the old physicians who write upon it do not always clearly separate the Carrot from the Parsnip in their comments upon the good qualities of these vegetables, for both were known to the ancients; and the generic name of the Carrot is supposed to be derived from a classical word alluding to the warmth of the plant; the specific one, however, is obviously compounded from the Keltic *car*, or "red," expressive of the usual colour of the root. We glean few particulars concerning the modes of cooking Carrots in the Roman days of luxury. It may be that the fastidious rejected the inner and fibrous part of the root, eating only the dark and more pulpy exterior.

The Carrot was certainly re-introduced to England by one or more parties of those Flemings, who, flying from persecution at home, found a welcome in these shores between 1580 and 1590. Most of them landed in Kent (though some probably arrived in Essex or Suffolk), and, bringing with them these and other plants, they began to cultivate them upon such small plots of ground as they could acquire. Such additions to the then scanty stock of English vegetables were heartily welcomed, especially in London, and by degrees the Flemings worked nearer to the metropolis, to form market gardens on a style of their own. One novel use to which the leaves of the Carrot were put is mentioned by Parkinson. The ladies of the Court during the reigns of James and Charles I. occasionally employed them as an ornament for their head-dresses. Gerard does not tell us whether he grew Carrots in his city garden. His praise of the vegetable is rather

cautious. The roots he considered to be moderately nourishing, and suitable to accompany fat meat.

When suburban London did not exhibit, as now, a network of streets and terraces, but was prolific in market gardens and nurseries, surrounding here and there a village or hamlet, some little space was allotted to the Carrot, though it was not a favourite plant with those cultivators who endeavoured to have a quick succession of crops; hence a good part of the supply of Carrots required by the metropolis came from a distance, and railway facilities widened still more the area that contributes vegetables to its hungry millions. For their main crops the market gardeners of the eighteenth century relied upon what they called the Orange Carrot, which produced roots both long and large. This crop they sowed in February generally, and Abercrombie, Mawe, and others insist much upon the importance of having the ground dug very thoroughly with the spade beforehand, and also that the Carrot should not be grown near the shade of trees if that could be avoided. They seem to have supposed the best Carrots were raised by sowing them in beds 4 or 5 feet wide, with "alleys" dividing these from each other. We have some mention made of the Horn Carrot in the reign of George III., but until a comparatively recent date gardeners paid little attention to the culture of varieties of this vegetable; and the Carrot came but slowly into use here as a food for animals, being grown for that purpose on the continent long previously, in Belgium especially.

The clever but eccentric Arthur Young, however, in the course of his peregrinations discovered that Carrots were cultivated freely on sandy fields in East Suffolk, and published the fact with his comments thereon. An impetus was also given to the progress of this vegetable in the esteem of farmers by some statements put forth through the medium of the Society of Arts in 1765. Then Mr. Billing, a Norfolk farmer, informed the world that he had raised from 20 acres 500 loads of Carrots in one season, which proved of as much utility as 1000 loads of Turnips or 300 loads of hay. Other northern farmers began to follow in his footsteps, and the value of the Carrot as a winter food for cattle was recognised. The roots appear to have been first given to horses by breeders in the way of medicine rather than food. A very marked effect was produced upon the wind where horses suffered from shortness of breath, and others suggested eventually the vegetable would prove a good food for horses mixed with Oats. Then Carrots were tried with sheep and pigs, the result being satisfactory, and the crop on the whole is not found to be prejudicially affected by the variableness of our climate. Probably at this time between 20,000 and 21,000 acres are devoted to the culture of the Carrot in the United Kingdom.

Amongst the ancients there prevailed a belief that the Carrot, more particularly its seed, was a cure for stings and bites, used both internally and externally, and a few physicians of modern days have recommended Carrots to be given as a part of the diet of consumptives where they can be digested. Having some antiseptic qualities, a poultice of this root is good for several kinds of malignant skin diseases. There appears to be some special aromatic principle contained in the Carrot, but the bulk of the root is starch and sugar with a little albumen.—J. R. S. C.

GROWING PLANTS IN MOSS.

CAPT. HALFORD THOMPSON recently exhibited at the Royal Botanic and Crystal Palace Shows some boxes and baskets filled with plants grown in moss which attracted some attention. A number of plants were employed, the majority of which were healthy and growing strongly, though the system certainly seemed to suit the foliage plants better than those grown for their flowers, as might be expected, for a loose rooting material is generally more conducive of rapid foliage growth than the production of flowers. Possibly this disadvantage may be overcome, and there are some obvious conveniences in using the moss. In a small pamphlet by Capt. Thompson, his method and its uses are thus described—

"Attention was called two years ago to the possibility of growing plants in moss, without any earth at all. A Frenchman of the name of Dumesnil claimed to be able to do so with the aid of some 'fertilising moss' that he had patented. I made several experiments with this moss, but though in some instances they were successful, I found that it was open to very great objections, and was by no means certain in its results; moreover, the fact that this 'fertilising moss' must on no account be allowed to touch the roots of the plant was a great source of danger, and precluded its being used by anyone who was not a skilled gardener. Mons. Dumesnil told us that if his moss was allowed to touch the roots the plant would die, and my experiments proved that he was correct. The method he adopted was to place a layer of his patent moss above and below, the plant itself being in ordinary moss; the basket was, in fact, planted 'sandwich fashion.' As I have already said, this required skill, and besides this it frightened people to be told that the compound was so dangerous.

"Having found from my experiments with Mons. Dumesnil's 'fertilising moss' that it was quite possible to grow plants without any earth at all, I set to work to endeavour to impregnate ordinary moss with some fertilising substance that would enable plants to be grown in it without all the precautions necessary in using Mons. Dumesnil's patent moss. I think I may say that I have perfectly succeeded. Plants in full bloom can be taken out of the ground or out of the pots, and after all the earth has been carefully washed off, are planted in moss which has been previously prepared with my fertilising fibre. They never even flag, but grow more luxuriantly than in soil. I may be asked that, granting the possibility of growing plants without earth, what advantages are gained? In answer to this, I would point out the extreme lightness of the baskets I am showing, and the extraordinary manner in which I have been able to mix plants in the same basket of utterly different characteristics, and requiring utterly different treatment when grown in earth. In one basket, 2 feet 9 inches by 2 feet 3 inches, I have the following plants, all in thoroughly healthy conditions, viz.:—Anthuriums, Franciscea, Vitis variegata, and Rhyncospermum, while the whole of the basket is covered with Selaginella. In another basket I have tricolor Pelargoniums, perfectly hardy outdoor plants, growing round the outside, with a Caladium growing in the centre. By this means we are enabled to get a mass of different colours beautifully blended together, and all in a basket that can be easily lifted about by one person without assistance.

"In addition to the advantage thus gained of extreme portability, and of blending different colours together, there is another point of great importance to invalids, and even to persons in sound health who like to have flowering plants in their sitting-rooms. Such plants when grown in earth always have more or less a sour earthy smell, which is most unwholesome. This is entirely absent from plants grown in moss. If you want to water them, too, all you have to do is to carry them outside (a very different thing to carrying out a number of heavy flower pots), water them, let them drain, and bring them back.

"For 'hanging baskets' the system of growing in moss will be invaluable, and I may add that it will open a new era for the greatly increasing method of 'window gardening,' now employed in London by many who formerly had no chance of seeing flowers at all.

"Now, as to the way to use my moss, my method is so simple that it hardly requires any description:—Take the plants you wish to put into the basket, carefully wash off all earth from the roots with tepid water, taking care not to injure the roots in so doing, then plant them in the ordinary way in the moss, which should be previously well wetted; if possible, keep the basket in a warm place free from draught for three or four days. The plants can, if wished, be transplanted from earth when in full bloom; they will not feel the check. After two months the upper layer of moss should be removed and a similar quantity of my moss put in its place. If Selaginella or Variegated Moss are grown on the surface of the moss, these should be carefully removed first and replaced after the moss has been changed. The baskets do not require watering oftener than plants grown in earth do. The weight of the baskets will show if they want water."

VINE GROWTH.

"THINKER'S" "thoughts" on this subject are inaccurate. "A Kitchen Gardener" spoke of the "out-of-date" system of cutting Vines down to within "2 or 3 feet from the bottom," which was Mr. Pearson's plan as recorded in his book, and "Kitchen Gardener" recommended instead "rods 10 and 12 feet long the first year," which is the new plan. If it was hypercritical to distinguish between the two systems "Thinker" must apply that term to "Kitchen Gardener," whom I only corrected in reference to the origination of the practice. "Thinker," however, misapplies the word in this case; it can hardly be hypercritical to distinguish between a system of culture which gives a houseful of Grapes before the Vines "are well over their first birthday," as "A Kitchen Gardener" puts it, and another system which takes several years to accomplish the same result; and those who have discussed the subject previously in the Journal and elsewhere seem to think so. What Mr. Pearson would have done or said had he "been alive" I do not know, but what he did do and write when he was alive was quite contrary to "Thinker's" "presumptions" now; and the way to write history truly is to record what people did and said, and judge them thereby, and not to attribute suppositious acts to them to suit our own present fancy. It is quite possible "Thinker" may have seen long rods left the first year thirty years ago, but he knows it was far from the rule in practice to do so; and those who come forward with such far-back testimony now are like Dr. Johnson's friends, who "encumbered him with their help when he no longer needed it."—NON-BELIEVER.

THE OPHIOGLOSSUMS.

THIS genus of plants is closely allied to the Ferns, and many of the species have claims to cultivation. They are a class of plants quite distinct in appearance, and, like the Platyceriums, are quaintly ornamental. The family has a wide geographical range, one species being found in British meadows, and others in New Holland, Portugal, Japan, and the West Indies. The genus is named from *ophis*, a serpent, and *glossa*, a tongue, and hence the name of Adder's-tongue, which is the popular name of the familiar English species. One of the most curious of the family is

O. pendulum, which is a native of Madagascar, where it is found growing on forest trees, its fronds hanging from the branches to a length of several feet. It is often found growing with *Platycerium grande*, and requires much the same mode of cultivation as that quaint plant. It is at home on the rocks of the tropical fernery, and will grow freely in a spongy mass of peaty soil.

O. palmatum (fig. 115) is one of the best of the species. It is somewhat rare, yet is not difficult to cultivate. It does not require a great depth of soil, but will luxuriate in a rough open composition of sphagnum, turfy peat,



Fig. 115.—*Ophioglossum palmatum*.

and charcoal, if a place is afforded it in a well-heated structure, and a copious supply of water is given in the growing season. This species when well grown is a distinct and ornamental plant, and one that is well worthy of all the care that can be bestowed in its cultivation. Plants may be increased by divisions of the roots or by seeds, but in either case the process is a slow one, and for a supply of these plants we must rely mainly on importations. The Portuguese species *O. lusitanicum*, and the British species *O. vulgatum*, are the most common, and have a place in most large collections of plants.

Several pretty species are found in India as well as other tropical regions, and amongst these may be mentioned *O. fibrosum*, with delicate little closely veined fronds, and *O. reticulatum*, with a similarly fine network of veins upon the fronds. It is surprising how widely distributed these Ferns are. For instance, the common *O. vulgatum* is not only found throughout Europe, but it extends into Africa, Japan, India, Australia

New Zealand, and the Sandwich Islands. Some of the others are equally common to the tropics of both the Old and New Worlds.—X.

COMING FLOWER SHOWS.

EXHIBITIONS are as numerous as ever, the following being those for June, July, August, and September, of which we have received any notification at present :—

- June 19th.—York Floral Fête. Sale (three days).
 „ 24th.—Royal Horticultural Society, Fruit and Floral Committees ; Fruit and Vegetable Show, South Kensington.
 „ 25th.—Croydon (Roses). Leeds (three days). Tooting (two days).
 „ 26th.—Richmond. Canterbury (Roses).
 „ 28th.—West Kent. Camden Park, Chislehurst. Reigate (Roses).
 July 1st.—Edinburgh International Forestry Exhibition. National Rose Society, South Kensington. Stoke Bishop.
 „ 2nd.—Royal Botanic Society's Evening Fête. Hull (three days). Wimbledon. Cardiff.
 „ 3rd.—Bury St. Edmunds. Winchester (two days). Bath (Roses). Chiswick. Farnham (Roses).
 „ 4th.—Sutton (Roses). Tunbridge Wells.
 „ 5th.—Crystal Palace (Roses).
 „ 7th.—Brockham (Roses).
 „ 8th.—Royal Horticultural Society, Fruit and Floral Committees ; Promenade Show.
 „ 9th.—Edinburgh (two days). Salisbury (Roses). Lee (two days).
 „ 10th.—Oxford (Roses).
 „ 14th.—Wolverhampton (three days).
 „ 16th.—Bedford.
 „ 17th.—Carlisle (two days). Warkworth (Roses). Newport.
 „ 19th.—Manchester (Roses).
 „ 22nd.—Royal Horticultural Society, Fruit and Floral Committees ; Fruit and Vegetable Show ; Carnation and Picotee Show.
 „ 23rd.—Newcastle-on-Tyne (three days). Feltham.
 „ 24th.—Sheffield (two days).
 „ 30th.—Warwick.
 August 2nd.—Liverpool (two days).
 „ 12th.—Royal Horticultural Society, Fruit and Floral Committees ; Cottagers' Show.
 „ 14th.—Maidenhead.
 „ 20th.—Shrewsbury (two days).
 „ 21st.—Reading.
 „ 26th.—Royal Horticultural Society, Fruit and Floral Committees ; Fruit and Vegetable Show. Banbury.
 September 2nd.—Stratford-on-Avon (two days).
 „ 3rd.—Glasgow. Bath (two days).
 „ 5th.—Crystal Palace Fruit and Dahlias (two days).
 „ 9th.—Royal Horticultural Society, Fruit and Floral Committees.
 „ 11th.—Bury St. Edmunds (two days). Dundee International (three days).
 „ 17th.—Edinburgh (two days).
 „ 25th.—Royal Horticultural Society, Fruit and Floral Committees ; Fruit and Vegetable Show.

CACTACEOUS PLANTS.

(Continued from page 422.)

CEREUS GRANDIFLORUS MAYNARDI.—This magnificent hybrid is unfortunately now rather scarce, yet its beauty and distinctness entitle it to prominent attention. In 1837 Mr. H. Kenny, gardener to Viscount Maynard, Easton Lodge, Dunmow, Essex, crossed *C. speciosissimus* with pollen from *C. grandiflorus*, and, the fertilisation proving successful, seeds were obtained which produced the plant under notice. This combined the characters of the parents in a striking manner, the habit of growth and form of the flowers of *C. grandiflorus*, with the addition of the rich colour of *C. speciosissimus*, rendering it invaluable. The flowers are 9 to 11 inches in diameter, and 7 to 9 inches long, the petals more cupped than in the ordinary *C. grandiflorus*; they are rich red with a tinge of orange, and usually last for two or three days, opening every evening. At its original home, Easton Lodge, now the residence of Lord Brooke, the plant had been quite lost, until recently, by the generosity of Mr. Major of Croydon, a specimen was furnished to the gardener Mr. H. Lister.

C. SPECIOSISSIMUS.—Though stronger in growth than the majority of the trailing species, this may be considered in that group, as it is more frequently grown trained to a wall, rafter, or trellis than in any other way. With very slight support it will assume an erect habit, but the upper parts of the branches then hang downwards, indicating the natural habit of the plant. It is a superb plant, and when in flower it cannot be rivalled in brilliancy by any other plant grown under glass. Large specimens are frequently seen in old gardens, but one of the most notable that I have seen is at Orsett Hall, Romford, the residence of Capt. Wingfield Baker. This has about thirty stems, each 6 to 8 feet high, which have been produced by repeatedly cutting down the main stem, and during April or May there have frequently been from sixty to eighty buds and flowers upon the plant at one time, sometimes twenty being fully expanded. This plant is in a large pot, and has not been disturbed for many years. The gardener, Mr. R. Castle, finds that all the assistance it requires is a good supply of water at the time of flowering, with a little weak liquid manure occasionally. It is, however, a fast-growing species, and is benefited by a rather richer compost than that usually afforded such plants, a small proportion of old manure being incorporated with the loam and sand employed.

The stems often assume a reddish hue, are about 1½ to 2 inches in diameter, with three to five rather deep ridges, furnished with prominent clusters of spines in dense tufts of white wool-like substance. The flowers vary greatly in tint, usually presenting a beautiful combination of scarlet and purplish crimson, the petals being quite glossy and shining in sunlight. They vary in size from 6 to 8 inches, the petals expanding fully with abundant stamens. When cut and placed in water they will last three or four days, retaining all their brilliancy of colour for that period. The fruits are green, ovate in form, 1 to 1½ inch long, with a pleasantly flavoured subacid pulp, somewhat suggestive of nearly ripe Gooseberries.

The species was originally introduced from Mexico to Madrid, and was thence sent to Paris by the Comte de Salm. It passed to this country, and

is believed to have first flowered in the collection of the Comtesse de Vandes about 1820, when it was figured in the "Botanical Register" (t. 486).

Numberless varieties have been raised from *C. speciosissimus*, as it seeds freely and crosses readily with other species. Many years ago Mr. Donald Beaton raised scores of seedlings from crosses between that and *C. flagelliformis*, and has stated that he never found a barren seedling. Mr. Pressley, gardener to W. Boyd, Esq., Plaistow, also raised some seedlings about 1832, some of which were exhibited, one named *lateritius* being described as of a very beautiful scarlet tint. Much attention was given to these plants about that time, for Sir Edmund Antrobus is said to have exhibited specimens with from 200 to 300 flowers each, which were as greatly admired then as large specimen Orchids are now. Hybrids between this *Cereus* and some of the *Phyllocactus* have also been obtained, but these will be referred to under the latter genus.

C. SPECIOSISSIMUS HYBRIDUS [MALLISON].—A beautiful hybrid from *C. speciosissimus* (the seed parent) and *C. flagelliformis*, which is deservedly a great favourite in many gardens. It was raised over fifty years ago by Mr. Mallison, gardener to Sir Samuel Scott, and is curiously intermediate between the parents, resembling the seed parent in the size, colour, and form of the flowers, and the other in habit, though with rather stronger stems. It has bright rosy crimson flowers 4 to 6 inches in diameter, very freely produced, and most handsome when the stems are trained to a rafter and then allowed to hang over a path. It is grown in this way at Kew, where a fine specimen is grafted upon a stem of *C. MacDonaldiae*. It requires a rather warm position in a stove.

C. MACDONALDIE, Hocker.—A handsome slender-stemmed species, which ought to be grown much more generally than it is at present, for it is one of the finest of the night-flowering Cactæ. It resembles *C. grandiflorus* in the size and appearance of the flowers, which are frequently 12 to 14 inches in diameter, with creamy white lanceolate petals with an outer fringe of narrow yellow sepals. The growth is, however, different, the surface of the stem being covered with irregular tubercles, not distinctly ridged as in most other species; it is slender, usually half to 1 inch in diameter, and trailing. A fine specimen is grown in the Cromwell House collection, trained over the wire arch shown in fig. 93, p. 405, and this plant has produced flowers 14 inches in diameter. Mr. W. Wright, the gardener in charge of this collection, has crossed *C. MacDonaldiae* with pollen from *C. speciosissimus*, which may be expected to yield an interesting and beautiful progeny. The species was introduced from Honduras to Kew by Mrs. General MacDonald, and first flowered in the Royal Gardens in 1851.

C. FLAGELLIFORMIS, Haworth.—Under the popular names of Whip-cord and Rat's-tail Cactus this plant is well known, and probably is the most generally grown of all the *Cereus*. It is one of the oldest-known in England, having been introduced in 1690 by the Earl of Portland, the same year as *C. triangularis* made its appearance here. The plant was cultivated by Miller, and was included in the Kew collection in Aiton's time. In reference to its habit and the number of ridges on the stem it was named by some of the old writers *Cactus repens decemangularis*, and amongst other still older titles bestowed upon it was *Ficoides americanum*, in reference to its native country, Peru, and contiguous districts of South America. The stems are very slender, about half an inch in diameter, and they grow to the length of 4 or 6 feet, being of pendulous habit. At Kew there is a fine example grafted upon a stem of *C. rostratus* 6 feet high, which has a dense cluster of branches, about sixty, each 4 or 5 feet long. When flowering this has a most striking effect, the bright rosy-coloured flowers, which are produced in spring and early summer, being extremely attractive. Owing to its very pendulous habit this species is generally seen to better advantage grafted on a stem of the columnar *Cereus*, upon any of which it seems quite at home. When on its own roots it appears to succeed best in a loamy compost, porous, but heavier than is usually given to Cactæ.

Many other trailing *Cereus* could be named, such as *C. Napoleonis*, *C. rostratus*, *C. Lemoinei*, *C. Karstenii*, *C. nycticallis*, *C. Cavendishi*, *C. serpentinus*, and *C. colubrinus*, but they are most rare, and as regards their floral attractions, those already described are preferable.—L. C.

NOTES FROM BOURNEMOUTH.

PERHAPS a few notes respecting the floral and arboreal beauty, situation, and surroundings of this far-famed health-giving Hampshire seaside town may prove interesting to those of your readers who may not have had an opportunity of visiting it.

Bournemouth is situate on the slopes and tableland east and west of a valley about a mile and a half long, and from 150 yards to 200 yards wide in its greater length, in the midst of Pine trees and a variety of flowering and ornamental shrubs. Except those in Southbourne Terrace and the Landsdowne Road, in which the several banks, town hall, theatre, arcade, &c., together with the numerous fashionable shops, are situate, the houses, for the most part, are detached villas, nestling in the privacy of their own well-kept grounds. Some distance from the well-made and capitally kept public roads and footpaths, and between the latter and the former, on either side, is a row of Pine trees, which afford at all times an agreeable shade. These gardens, the owners of which seem to vie with each other in the possession of graceful trees and shrubs and floral masses of various colours, extend for miles, and for the last month, especially in those gardens in the neighbourhood of the Old Christchurch Road, the Laburnum, Scarlet Thorn, White Broom, L. lac, &c., have formed a very pleasing picture.

The Public Pleasure Gardens.—These are situated in the valley referred to above, which slopes gently from the neighbourhood of the west station of the Salisbury, Bournemouth, and Weymouth branch of the London and South-Western Railway in a southern direction to the handsome and substantially constructed iron pier. In the formation and planting of these extensive gardens taste and judgment have been exercised by the landscape gardener in turning to the best advantage the liberal assistance which Nature, in the undulated surface and surroundings of this once wild valley of Pinewood and Heather, freely offered to his art. Through these gardens flows, in a southern direction, a quiet stream or bourne, which,

winding under tunnels and ornamental bridges, passes into the sea beneath the pier. But insignificant as this brook may appear, the town of Bournemouth derives its name from it.

In the expanse of closely cut green sward between the two longitudinal walks and the stream are a few pairs of circular beds, bright with late spring-flowering plants and shrubs; the side borders between the roads and the long walks, which are connected by transversal ones and bridges at convenient distances from each other, being remarkably gay with the foliage and flowers of Rhododendrons, Flowering Currants (*Ribes sanguineum*), White Broom (*Cytisus albus*), Laburnums, &c. These borders, as well as the "Invalid's Walk," and the several shady walks leading therefrom among the Pine trees, which in the locality of the Royal Bath Hotel and pier, climb the slopes 200 or 300 yards eastward, having a groundwork of Rhododendrons and a boundary of Evergreen Oak (*Quercus Ilex*), The Strawberry Tree (*Arbutus unedo*), &c., are all edged with Thrift (*Armeria maritima rubra*), and there being a couple of miles in length of it in the aggregate, it is very effective now, as it has been for several weeks past.

Coniferae are sparingly represented at the top end of the gardens, where being sheltered somewhat from the effects of the salt breeze, the trees are more luxuriant in growth than those in other parts of the garden. Indeed it is only in situations so sheltered that trees and shrubs, with one or two exceptions, flourish in Bournemouth, as evinced by the poor condition of the young Pine trees (*Pinus austriaca*), recently planted in the triangular piece of ground thus formed by the junction of the two principal walks at the pier entrance to the gardens. These are nearly all dead, and this can scarcely be wondered at, though by the erection of a hoarding of some kind until the trees had established themselves perhaps it might be avoided, as the position (the mouth of the valley, and within a hundred yards of the sea), is a very exposed one. Most of the outside rows of Pine trees along the cliffs have been killed by the force of the wind and wave, and salt combined. The most striking instance of destruction thus wrought is that which meets the eye at the south-western angle of the Pinewood above Earl Cairns' mansion on the East Cliff. Scores of these trees together, from 30 feet to 40 feet high each, are quite destitute of foliage. Two good seaside shrubs, however, are the green-leaved *Enonymus*, which within a few dozen yards of the pierhead on the West Cliff, is nearly buried in drift sand, and the double-flowered Gorse; the latter being in grand flower during the last few months on the East Cliff, about three-quarters of a mile from the pier. The same may be said of those occupying the enclosed space between the fence enclosing Landisfarne Gardens and the Gervis Road, where the bushes having become rather long and bare-stemmed, with the assistance of the switching hook and long crooks, Mr. Spong, Earl Cairns' energetic head gardener, very properly placed in a horizontal position last spring. I need scarcely add that the result of this judicious treatment a year or two hence will be a dwarf hedge well furnished from base to summit with foliage and flowers of the softest yellow imaginable. Great praise is due to the authorities of Bournemouth for the consideration which they have shown in reference to the accommodation and comfort of those visiting the gardens, roads, and cliffs, by fixing rustic and ornamental garden seats in sunny and shady nooks commanding pleasant views of the sea.

The most important private gardens in Bournemouth are Hume Towers, the residence of John Lellom, Esq., and which for the last fourteen years has been ably presided over by Mr. William Earp, an old Garston man; Landisfarne, Earl Cairns' garden; and the beautifully laid out grounds in connection with the Royal Bath Hotel, and in the planting and keeping of which, together with the evidence of skilful culture in the various vineries and plant houses and kitchen garden, the gardener, Mr. Hawks, is to be complimented.

I may be allowed to say by way of showing the rapid growth of Bournemouth, which now contains about twenty churches, that a pensioner bricklayer on this estate assisted in building the first house in this now celebrated "Mentone" of England.

My notes would be incomplete without a reference being made to Mr. E. White's floral establishment in the Holderness Road. It is a summer and winter garden, a young Crystal Palace, and in the pretty, though small, grounds in front of this huge combination of glass and iron are a couple of good specimens of the Chilean Pine (*Araucaria imbricata*). They are about 30 feet high, the stems being 3 feet in circumference at that distance from the ground, and are furnished with healthy branches. Within a short distance of these are also two good specimens of *Cryptomeria japonica elegans*. Neither must I omit to mention the Rhododendrons in Boscombe Chine on the East Cliff, and the beautiful trees and shrubs in the still more beautiful burial ground on the steep slopes to the rear of St. Peter's Church, where on either side the broad walk leading in the direction of the vicarage are thirty-two of the finest and most uniform pyramid oval-shaped bushes of *Arbor Vitæ* which I have seen for a long time. They are about 12 feet high and 6 or 7 feet through, and are the picture of health.—H. W. WARD.

THE TIMBERS OF NEW SOUTH WALES.—It is a common error to assume that New South Wales is deficient in timber suitable for industrial purposes; on the contrary, the Colony is rich in different kinds of wood of the most valuable character, among which the Red Cedar occupies a prominent place. It is one of the most useful descriptions known, being very durable, easily worked, and easily adapted for furniture and all kinds of ornamental indoor work. In some parts of the Colony there are large Cedar forests, in which the trees are found growing to a very

great size, one block recently cut and shipped from the Richmond River to South Australia being valued at £600. The whole of the interior woodwork of some of the Government offices in Sydney is constructed from this wood, which has the appearance of rich, light-coloured mahogany. Several kinds of Gum Tree are largely used in colonial manufacturing industries. Among these is the Red Gum, the timber of which is highly valued for strength and durability, especially for piles and posts in damp ground. It is employed largely for ship-building, railway sleepers, bridges, wharves, and numerous other purposes. The Spotted Gum is used in a similar manner, also for naves of wheels, cart and buggy shafts, cubes for street-paving, staves, shingles, and general building purposes, where a strong, close-grained, and durable timber is required. Another wood of the same character is the Red Ironbark, to which may be added the Grey Ironbark, both of which are abundant in many parts of the Colony.

GRAPE-THINNING.

A FEW words in answer to "J. J.'s" criticisms (page 439), of my remarks on the above subject. I will take his last objection first, as it is the only one of importance. "J. J." states, "'T. A. B.' also says, 'The berries should not touch one another.'" What I did say is, "Allowing the berries to touch each other during the stoning period is a sure way of producing scald." "J. J." says, "Scalding takes place when the berries are stoning," which is true, and for that reason I advise lifting up the shoulders to prevent the various parts of the bunches resting upon each other, as I find that where the berries are in contact the moisture is sure to remain too long to be safe. All of us are not provided with efficient heating and ventilating apparatus. My boiler is so inadequate to its work, and the ventilation so badly arranged that I am not able to leave "a crack" of air all night unless the weather is very mild, if I was there would be less danger. I am aware that allowing the berries to touch each other is not the sole cause of scalding, but unless the ventilation is very carefully attended to it may be one cause. My bunches are not like some of the monsters "J. J." speaks about; they are only moderately large, ranging perhaps from three-fourths of a pound to 3½ or perhaps 4 lbs. On some of them the greater diameter is across the shoulders, and I fail to see how tying could be dispensed with. Tying may be and frequently is overdone, and unless this is altered in time the bunch will be spoiled, but that is no reason for dispensing with it altogether. The piece of twisted matting recommended for removing the bunch I consider more convenient than a piece of stick with V-shaped ends. I have never seen a really good bunch at a show where the shoulders had not been tied, but in many cases I have seen the shoulders carefully held in position by means of a small pad of cotton wool placed under them.—T. A. B.

ROYAL BOTANIC SOCIETY.

JUNE 18TH.

THOUGH less brilliant than the preceding Show of this Society, that held on Wednesday last was a large and beautiful one. There was a slight want of colour in the large tent, but no doubt the dull weather contributed greatly to this effect. The total number of exhibits was very large, and in the fruit classes especially the entries were numerous.

ORCHIDS.—A fine display of Orchids was again provided in the large tent, the plants being large and profusely flowered. The best amateur twelve specimens were from Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, who had beautiful examples of *Dendrobium Bensoniæ*, *Masdevallia rosea*, *Cattleya Mossiæ* Southgatei, *Odontoglossum vexillarium*, richly coloured, *Cattleya Warneri*, *Dendrobium suavisimum* in grand condition, and several others. Mr. Catt, gardener to W. Cobb, Esq., Silverdale Lodge, Sydenham, was a close second, having handsome specimens of *Vanda teres*, *Lælia purpurata*, *Dendrobium Bensoniæ*, and *Masdevallia Harryana*. Mr. F. J. Hill, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, secured the third prize with healthy well-flowered plants. In the nurserymen's class for the same number of specimens Mr. H. James, Norwood, was first with very large *Cattleya Mossiæ*, *Aerides odoratum*, *Odontoglossum cordatum aureum* with six spikes, and *Epidendrum vitellinum*. Mr. J. Cypher, Cheltenham, followed, showing *Dendrobium Bensoniæ* very well; *Brassavola Digbyana*, *Cypripedium nivicum*, and *Dendrobium infundibuliforme*. Messrs. T. Jackson & Son, Kingston, were third with smaller plants.

The leading prize in the amateurs' class for six plants was gained by Mr. Child, gardener to J. Bell, Esq., Garbrand Hall, Ewell, with very handsome specimens, *Cypripedium Stonei* major having four spikes of eighteen flowers; *Aerides Lobbi* with two panicles of three and four branches each and one long spike; *Vanda suavis* with three spikes, *Oncidium ampliatum majus*, *Aerides Fieldingi floribundum*, and *Cypripedium barbatum superbum*. Mr. Salter was second with smaller but well-grown plants. Messrs. Jackson took the lead with six in the nurserymen's class, showing several *Cattleyas*, *Dendrobiums*, and *Cypripediums* in fine condition; *Dendrobium thyrsoiflorum* with eight fine spikes was especially notable. Mr. H. James was second with a good assortment, including a very large *Anguloa Clowesi* with eight large flowers.

Mr. H. James was the only exhibitor of twelve *Nepenthes*, securing first honours with a collection of large specimens similar to what have been before described.

PELARGONIUMS.—Two beautiful corner groups were formed of these near the entrance to the tent, especially fine being the six Fancy specimens from Mr. C. Turner, Slough, who was first in that class. These were profusely flowered, *Delicatum*, Mrs. Pope, The Shah, and Nelly Fordham being charming. Mr. Turner's best six Show varieties were nearly as good, *Comtesse de Choiseul* being in the grandest condition. *Ritualist*, *Illuminator*, and *Victory* were very fine. Mr. Cypher had the second place with six Show varieties, very neat and well-flowered plants. Mr. Wiggins,

gardener to W. Clay, Esq., Kingston, won premier honours in the amateurs' class for six Show varieties, a bright, handsome collection. Mr. F. J. Hill, gardener to H. Little, Esq., Hillingdon Place, Uxbridge, followed with thinner but fairly good specimens. He was, however, an easy first with six Fancy varieties, even, fresh, and profusely flowered specimens, being followed by Mr. Wiggins with smaller examples. Mr. Eason, gardener to B. Noakes, Esq., Hope Cottage, Highgate, had six neat Zonal Pelargoniums, well flowered, being followed by Mr. Weston, gardener to D. Martineau, Esq., Clapham Park.

STOVE AND GREENHOUSE PLANTS.—Mr. J. Cypher was the principal exhibitor in the open class, taking the first place with twelve beautiful plants, including *Erica Cavendishiana*, *Ixora Williamsi*, *Allamanda Hendersoni*, and *Stephanotis floribunda* in superb form. The second honours were adjudged to Messrs. Jackson & Son, several of these plants being scarcely in their best condition. *Pimelea mirabilis*, a globular well-flowered specimen. Mr. H. James followed with small but fresh and neat specimens of *Heaths*, *Azaleas*, and *Statice*. Mr. J. Cypher staged the leading collection of six specimens in the nurserymen's class, most praiseworthy plants; *Ixora Fraseri* being loaded with flowers, *Erica depressa* in grand condition, and *Dipladenia amabilis* very handsome. Mr. J. F. Mould was second with small specimens. Mr. H. James was third, having a good *Erica Cavendishiana*. Mr. J. Child took the lead with six plants, including *Dracophyllum gracile*, *Erica depressa*, and *Aphelaxis macrantha purpurea*, very fine. Mr. Gibson, gardener to T. F. Burnaby Atkins, Esq., Halstead Place, Sevenoaks, was second with profusely flowered plants. Mr. Rann was third.

Messrs. J. Laing & Co., Forest Hill, had the only collection of twelve Tuberos Begonias, a choice selection of the leading varieties, distinguished by the great size and rich or soft colours of their flowers. Mr. Child was also first in the amateurs' class, with good plants and varieties. Mr. J. Tong, gardener to J. S. Law, Esq., South Lodge, Southgate, was second.

Fine-foliage plants.—Mr. H. James won the chief prize for six specimens, his best plants being *Theophrasta imperialis* and *Anthurium regale*. Mr. F. Mould, Pewsey, was second with smaller plants. Mr. C. Rann had the best six fine-foliage plants, the Palms and Crotons being very good. Mr. G. Wheeler was a good second, his *Corypha australis* being very fine; and Mr. R. Butler followed with large Palms and Crotons, the latter rather wanting in colour. The best six Palms were shown by Mr. Rann, his gigantic *Phoenix seychellarum* being very prominent and effective. Mr. James was second, his central specimen of *Areca lutescens* being of great size and in fine condition. Mr. R. Butler, gardener to H. H. Gibbs, Esq., St. Dunstan's Lodge, Regent's Park, was third with healthy plants.

An excellent collection of Ferns from Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, gained him first honours in the class for six specimens, *Davallia Moreana* 7 or 8 feet in diameter, *Cyathea dealbata*, 10 feet high and as much in diameter across the head of fronds, with *Todea africana* of nearly equal size, were magnificent. Mr. J. Child secured the second place with similarly praiseworthy plants, as healthy and well grown as could be desired.

FRUIT.—There was a good display in the classes provided for fruits, and in some the competition was very keen.

Pine Apples.—For one Queen Pine Mr. F. Coomber, gardener to J. H. Rolls, Esq., M.P., The Hendre, Monmouth, was first with a beautiful even well-ripened fruit of about 6 lbs. weight. Mr. T. Hare, the Gardens, Wellingore, Grantham, followed with a well-developed specimen, and Mr. G. T. Miles, gardener to Lord Carrington, Wycombe Abbey, Bucks, was third with a fruit weighing 5½ lbs. There were five entries. For any variety not a Queen Mr. Muir, gardener to C. R. M. Talbot, Esq., M.P., Margam Park, Tarbach, was first with Charlotte Rothschild, weighing 6 lbs., in fine condition. Mr. G. T. Miles was second, and Mr. Bates, gardener to J. E. Meek, Esq., Poulett Lodge, Twickenham, third, both with Smooth Cayenne.

Melons.—A class was provided for two fruits, one green and the other scarlet-flesh. Of six competitors Mr. Chuck, gardener to C. S. A. Thellusen, Esq., Broadworth Hall, Doncaster, was first with High Cross Hybrid and Royal Ascot; Mr. Hollingworth, The Gardens, Woodseat, Uttoxeter, second with Trentham Favourite and Hero of Lockinge; Mr. C. Herrin, The Gardens, Chalfont Park, following with Victory of Chalfont and Blenheim Orange.

Grapes.—Considerable space was occupied by the entries in these classes; the black Grapes being generally of fair quality. For a basket of black Grapes Mr. Wildsmith, gardener to Viscount Eversley, Heckfield, was first with Black Hamburg, large in berry and bunch, and beautifully coloured. Mr. E. Adams, gardener to W. H. Trego, Esq., was second, and Mr. W. Fyfe, gardener to W. W. F. Dick, Esq., Thames Ditton House, third with the same variety. Five baskets of a white variety were staged. Mr. P. Feist, gardener to R. J. Ashton, Esq., Bishopsgate House, Staines, winning chief honours with Muscat of Alexandria, large in bunch and berry, but deficient in colour. Mr. Mowbray, gardener to the Earl of Leven and Melville, Fulmer, Slough, was second with Buckland Sweetwater well ripened; and Mr. Cakebread, gardener to Sir P. F. Rose, Bart., Raynes, Bucks, was third with Foster's Seedling of good size and fairly ripened.

In the class for three bunches of Black Hamburgs the competition was extremely keen, no less than thirteen exhibitors entering. Mr. Wildsmith won the first honours with three magnificent bunches, large in berry and splendidly coloured. These also secured the Veitch memorial medal and prize of £5 for the best three bunches of Grapes in the Show, a double honour of which Mr. Wildsmith may well be proud. Mr. W. Chuck was second with even beautifully coloured bunches, and Mr. Woodbridge, The Gardens, Syon House, was placed third with well ripened examples of good size. A similar prize was awarded to Mr. T. Coomber for bunches of good size.

For three bunches not Black Hamburgs, Mr. G. T. Miles was first with fine specimens of Gros Colman, large and grandly coloured. Mr. Loudon, gardener to T. Barnes, Esq., The Quinta, Chirk, was second with Madresfield Court of fair size, but wanting colour. Mr. Mowbray was third with Black Prince.

White Grapes were well represented in point of numbers. For three bunches of Muscat of Alexandria there were six competitors, Mr. Loudon gaining the chief place with good bunches, two of which were well coloured. Mr. Cakebread was second, and Mr. Feist third, both showing rather green examples. For three bunches of any other white Grapes Mr. Adams took the lead with Buckland Sweetwater in good condition. Mr. R. Grey, gar-

dener to Earl Stanhope, Chevening, Sevenoaks, was second with Foster's Seedling, large in bunch and berry; and Mr. Herrin was third with the same variety. There were ten entries. Peaches, Nectarines, Cherries, and Strawberries were not largely shown, the principal prizes being taken by Messrs. W. Bones, Hare, Kemp, Chuck, and Sharpe.

The Fruiterers' Company's prize of ten guineas for the best collection of fruits was gained by Mr. Wildsmith, who had Pine Apples, Grapes, Melons, Peaches, Nectarines, Strawberries, Figs, and Cherries, all in fine condition.

Cut flowers occupied considerable space in the long tent. Roses were well shown by Mr. Hollingworth, Turkey Court, Maidstone; Messrs. Paul and Son, Cheshunt; Mr. W. Robbins, gardener to E. Dyke Lee, Esq., Hartwell House, Aylesbury; and Mr. A. Gibson. The principal exhibitors of miscellaneous flowers were Mr. W. Balchin, Brighton; Mr. H. James, Mr. C. J. Salter, Mr. Gibson, and Mr. Weston. Mr. C. Turner, Mr. Little, and Mr. Clay showed the best stands of Pelargonium blooms. Several collections of wild flowers were also contributed.

The miscellaneous exhibits added materially to the effect of the show many handsome groups being displayed. Mr. Baxter, gardener to Sir Trevor Lawrence, exhibited a handsome group of Masdevallias, for which a silver medal was awarded. From Mr. B. S. Williams, Holloway, came an effective collection of Orchids and various greenhouse plants. Cattleyas were in great force, and a small silver-gilt medal was deservedly accorded to the group. Messrs. W. Cutbush & Son, Highgate, exhibited a group of greenhouse plants, including Azaleas, Stephanotis, Ericas, and others. A small silver medal was awarded. A magnificent group of Begonias from Messrs. John Laing & Co., Forest Hill, represented one of the finest features of the Show. It was a display of flowers of great size and variety of colour. A small silver-gilt medal was awarded. Messrs. J. Veitch & Son, Chelsea, had a collection of cut flowers, consisting of Irises, Brompton Stocks, Gladioli, Ixias, Antirrhinums, and others. The first-named were very fine and diversified and Gladiolus Colvilli alba was in excellent condition. A large bronze medal was awarded. The same firm sent a group of greenhouse plants, the Gloxinias being exceptionally good. This also was a fine collection, and a large silver medal was awarded. Mr. C. Turner, Slough, exhibited a fine collection of Pelargoniums amongst the other miscellaneous groups, and was awarded a large bronze medal. Mr. J. Burns, gardener to Mrs. Bond Cabbell, Cromer, exhibited six pots of scarlet Brompton Stocks of good colour. Messrs. Barr & Son, Covent Garden, were represented by a very large collection of cut flowers, amongst which Poppies, Irises, Gladioli, Lilliums, Pæonias, Ixias, and Pyrethrums were strikingly to the fore. A large bronze medal was awarded. Messrs. Hooper and Co., Covent Garden, sent an excellent collection of cut flowers, largely consisting of Pæonies and German Irises. It included many other popular hardy flowers, however, and a small silver medal was adjudged to it. Messrs. Paul & Son, Cheshunt, exhibited a very large collection of hardy plants, comprising Campanulas, Aquilegias, Pansies, Pæonies, Poppies, Geums, Irises, and numerous others. This was a really grand group, and attracted considerable attention and received a silver medal. Messrs. Kelway & Son, Langport, Somerset, also sent a miscellaneous collection of flowers, including Pyrethrums, Pæonies, and Amaryllises. A certificate was awarded. Mr. W. Chuck, gardener, Brodsworth Hall, Doncaster, showed a dozen cut blooms of Souvenir de la Malmaison Carnation in fair condition. The miscellaneous fruit exhibits were not very extensive. Four Queen Pine Apples were sent by Mr. Fry, gardener to L. J. Baker, Esq., Haydon Hall. A Melon from Mr. Chuck, and another from Mr. C. Herrin, gardener to J. N. Hibbert, Esq., Slough, were also exhibited. A dish of Lord Napier Nectarines were shown by Mr. Mundell, gardener to Lord Ebury, Rickmansworth, and of Bellegarde Peaches by Mr. Bones, Havering Park. Mr. Woodbridge, gardener, Syon House, Isleworth, was awarded a certificate for fruit of *Vanilla planifolia*. Mr. P. Feist, Bishopsgate House, Staines, showed three fair bunches of Muscat of Alexandria Grape.



KITCHEN GARDEN.

The Season and Vegetables.—In our district the season is one of the most favourable experienced for some years for all kinds of vegetables. There are many who think that a mild winter favours the production of insect pests, but so far these have been scarce and have done little damage. Indeed, they are far less destructive than they have been after the most severe winters. Onions, Carrots, and Cauliflowers are amongst the first to be attacked, but if they remain free until July it is very seldom they are much injured afterwards. For this reason many who are unable to grow some crops owing to the destructiveness of the grubs in spring may safely sow or plant in July. Globe Artichokes are wonderfully fine this spring, and we account for this through their not being frosted down last winter. Many say they did not like this vegetable, and if they have only had experience of small heads we are not surprised at their impression; but large succulent heads, especially of the Green variety, are really delicious.

Planting Broccoli.—These should all be put in their bearing quarters as soon as possible. We plant large quantities between late Potatoes, and we find them succeed well in such positions. The plants should not at any time be grown closer together than 18 inches each way, and some of the stronger-growing varieties should stand 2 feet apart; but we do not approve of growing them 3 feet or more asunder in order to get extra large heads, as medium ones are the most serviceable. Where the plants are growing close together in the seed rows they must be eased at the root with a fork, then draw them up, wet all the roots in a paint-like

mixture of soil, soot, lime and water, and dibble them into their places. This operation will keep the plants fresh, and few insects will attack the roots with such a compound about them. Kale, Savoys, Brussels Sprouts, and Winter Greens should be treated in the same way, and the sooner the better.

Turnips.—Sow a large quarter of Veitch's Red Globe for use in September and October. Thin out young crops, use as many roots as possible of those which are ready, as they will not remain long tender, cool, and sweet. Pull up all those going to flower, and fill up the ground with other crops.

Late Peas.—The sowing of these should now be completed. Suttons' Latest of All is what its name implies, and is also one of the best. Moderately rich cool soil is the best to sow in now. Clear off early crops as soon as the pods have been gathered, use the stakes for latter ones, and fill the ground with other crops. There should not be a square yard of unoccupied ground in any garden at this time. Peas being grown for exhibition should have the points taken off each stem just above the second or third pods, and give abundance of strong liquid manure at the roots. The pods should be well filled, no empty corner at the end, and at the time of showing they should be well developed, yet tender and green.

Small Salads.—These must be sown frequently now, especially Mustard and Cress, and Lettuce also require attention in this way. A pinch of Endive seed should be sown to produce a few heads in the autumn, but it is too early to deal with the main crop.

Watering.—This is now receiving more attention from us, as the weather has become warm and dry, but we entirely disapprove of surface dribblings, but when water is required a thorough drenching is given, and no more is needed for a long time. Newly planted Celery often stands in need of water until established. Peas are greatly benefited by it, and so are Kidney Beans and Cauliflowers.

Mulching.—This is another good practice, and many vegetables are greatly benefited by it. Peas and Beans delight in having a layer of manure placed along each side of the row, and Cauliflower and others of the class thrive admirably when their stems are surrounded with manure. A mixture of lawn cuttings, horse droppings, and decayed refuse is most suitable for mulching vegetables.

Vegetable Marrows.—These are now showing plenty of flowers, but at first many of them fail to form fruit. A good remedy for this is to pinch the point out of each shoot just before the blooms open, and when it is seen that there are many fruits on the stem. Fertilising the flowers also helps to make them swell, and dryness at the roots will spoil all.

Hoeing.—No one will make a mistake in doing this now. "When there is nothing else to do, always hoe" is our order at this season, and there are many advantages connected with the practice, as an open clean surface is beneficial to all crops.

Raking.—Many who pay more attention to dressing and keeping than sound cultivation devote much time to raking between their kitchen garden crops at this season, but more harm than good results, as, except on the score of appearance, raking and making the surface very fine is superfluous work.

FRUIT FORCING.

VINES.—**Late Houses.**—The final tying-out and thinning of late Grapes will require close attention, otherwise surplus bunches and rapidly swelling berries will rob the fruit which it is intended to leave for ripening. The best time for thinning is the early morning and in the cool of the evening; but at those times care must be taken that the hand does not come in contact with the berries, as this, though it may not show any immediate effect, very often plays an important part at the finish. Colouring depends to a great extent upon the removal of surplus bunches, and finish is the result of careful thinning of the berries. It is impracticable to lay down any rule for thinning, as the Vines even of the same variety differ, some finishing much finer berries than others. The aim should be a selection of the perfectly fertilised berries, leaving them sufficiently numerous to form a compact cluster that will hold itself in form when laid on the dish.

Watering.—When Vines are in active growth the roots must have moisture; if it is not given at the surface the roots will strike down in quest of it. Hence it is better to keep them within the influence of air and sun by liberal surface supplies. Vines swelling off their crops should have a good soaking with tepid liquid manure or guano water at the rate of 1 lb. to 20 gallons of water, applying it at a temperature of 90°. These remarks apply more particularly to inside borders, but outside borders that are well drained should have similar attention in dry weather. In wet weather outside borders will not of course need water, but they ought to be mulched so as to keep the surface moist, attract and keep the roots there.

Temperature.—Fire heat will only be necessary to keep up a minimum of 65° for Hamburgs and 70° for Muscats, which should be accompanied with a circulation of air to keep the moisture from condensing on the leaves and berries. Increase the ventilation to 70° for Black Hamburgs and 75° for Muscats, allowing the temperature to advance with the increased solar heat, keeping it at 85° to 90° for Muscats, and 80° to 85° for Black Hamburgs through the day with sun heat, and close early with plenty of moisture in the house, sprinkling the borders and paths with clear liquid manure.

Young Vines for Next Year's Early Fruiting.—When the Vines, whether in pots or planting out in borders, give indication of ripening, the ventilation should be increased with a gradual reduction of moisture, but there must not be any attempt to ripen them suddenly by withholding

water, though the supply will need to be lessened, and the foliage must be preserved clean and healthy as long as possible by the free use of the syringe.

Cucumbers.—The most important point now is daily attention to the management, and as the weather is suitable without resort to fire heat, the plants are growing rapidly, and will require thinning two or three times a week to prevent overcrowding. Stop one or two joints beyond the fruit, and remove all surplus and ill-shaped fruit, as overcropping is injurious to the continued fruitfulness of the plants. Use the syringe early in the morning and at the time of closing in the afternoon, after which the temperature may rise to 90°, and after the house has been closed about three hours admit a little air for the night. Commence ventilating at 75°, increasing it with the sun heat, keeping through the day at 80° to 85° or 90°, and close at 80°. Syringing will be sufficient to keep red spider in check, but if it should obtain a hold syringe with clear sulphur water late in the evening, well wetting the stems, foliage, and walls, and shade early the following day, and if the spider be not subdued repeat the syringing. Supply tepid liquid manure at every alternate watering, and afford a top-dressing of lumpy loam and a fourth of well-decayed manure. Shade only to prevent flagging.

Plants in Pots and Frames.—These will need to be examined twice a week for stopping, thinning, and regulation of the growths, never suffering them to become overcrowded. Employ glasses for keeping the fruit straight and free of the blanched hue, which is produced by close contact with the soil. Admit air early in the morning—a little at 75°, and increase it with the solar heat, closing at 85°, damping overhead at the same time, and if the temperature rise to 90° it will be an advantage. Keep the temperature through the day at 80° to 85° from sun heat. Water will be needed at the roots about twice a week, and if liquid manure be necessary apply it without wetting the foliage. Aphides are sometimes very troublesome, and the best mode of destroying them is by fumigation, but the plants must be prepared for it by allowing the foliage and bed to become dry and reduce the temperature. Fumigate lightly, and on two or three consecutive evenings, and be careful to have the smoke cool, so as to prevent scorching. Syringe early the following morning and shade before the sun affects the foliage. The same remedy is applicable to attacks of thrips.

PLANT HOUSES.

Allamandas.—These plants, as well as Clerodendrons and Bougainvilleas that are grown in pots and trained upon trellises, can be used for decoration in the conservatory or any other cool structure kept gay with flowering plants. The two former should not be removed until they are well in flower, while the latter if allowed to develop its beautiful bracts in a cool temperature are much lighter in colour than when expanded in stove heat. Previous to the removal of these plants they must be carefully prepared by gradually hardening them, for upon this the duration of the flowers depends. When these plants are used in cool structures the supply of water to the roots must be regulated with caution, for they will not need such liberal supplies as would be the case if kept in the stove.

Achimenes.—The earliest started plants are now in full beauty, and may be carefully hardened for decoration in the conservatory. In this structure they are much more beautiful than in the stove, for they do not become drawn so quickly. Their growth is slow and sturdy, consequently they flower with such freedom that they are highly effective amongst Pelargoniums, Calceolarias, and other flowering plants. The specimen pots and pans raised by inserting cuttings thickly together are decidedly better than those raised from the tubers, although a week or two longer in coming into flower. A very large stock can soon be raised by employing cuttings, for a few pans of tubers started early in the year will yield batches of cuttings in succession through the whole year. No plants are more easily grown and none more useful and beautiful for the various purposes of decoration. Numbers of these should be grown for conservatory decoration during the summer months instead of so many Zonal Pelargoniums.

Crotons.—Plants that have become too tall for decoration in 5 and 6-inch pots should be headed down and their tops rooted. These strike freely in close moist heat at this season. In order to maintain a supply of these plants in the best possible condition for decoration, a few should be propagated at intervals of a few weeks, for as soon as a plant becomes tall and unfit for the purpose the top should be rooted without delay. To have these plants well coloured for decoration they should be grown in full sunshine and close to the glass. Ventilate in preference to shading, closing the house or pit in which they are grown early in the afternoon. It is difficult to imagine any plants more unsightly than Crotons for decoration when badly coloured.

Dracenas.—These plants need almost constant attention in propagation when required in small pots for room and other decoration. Heads make the best plants, as they are furnished at the base with well-developed foliage, which is not the case with those raised from roots and the stem. It is almost impossible to maintain a supply of good heads for this purpose where many are used and injured in rooms. The only system by which this can be accomplished is to raise plants from the stem and roots and grow them on until they form good heads, which should be taken off and rooted. The tops of these plants root freely in a cool moist house if shaded from strong sun, in fact very much better than they will do in a propagating frame.

Nepenthes.—Cuttings that are inserted as advised some time ago are now rooted, and, if gradually hardened to the more airy condition of the house in which they are to be grown, may be placed in baskets 6 inches square or into larger pots. When grown suspended from the roof the

former are preferable, because the pots give almost constant labour in washing to keep them clean. These plants will grow well in sphagnum, peat, or loam, but when grown in baskets peat fibre is the best. Shade from strong sun, syringe frequently, and give abundance of water.

Gloxinias.—Seedlings raised from seed sown in the early spring and now established in small pots should be placed in 5-inch pots and grown close to the glass in an intermediate temperature where they can be kept shaded from strong sun. These plants will grow in a much cooler house than many suppose, and the flower stems will be sufficiently strong to support their blooms, which is not the case when forced in strong heat. If a little seed is sown at the present time, and the young plants grown and flowered in the size pots named above, they will be found most useful late in the season.

THE FLOWER GARDEN AND PLEASURE GROUND.

Surplus Bedding Plants.—In most gardens the bulk of the bedding-out has been completed ere this, and a few hints regarding the disposal of the surplus plants may be of service. Where there is a reserve garden used for storing evergreens and other plants from the flower garden, these are also available for the summer and autumn propagation of various hardy and tender bedding plants. Those not possessing this convenience should yet endeavour to devote a few good plots of ground in the kitchen garden or elsewhere to a similar purpose. The various sorts of Pelargoniums especially are seldom struck early enough in the autumn to become sufficiently strong to stand a dull winter. Neither the gardener nor the employer likes to see the beds interfered with during August, yet it is during this month the cuttings should be taken off. Those, then, who can plant a given number of each sort, as well as all those that are valuable and scarce, on a sunny well-manured piece of ground, should do so, and thus be enabled to cut them freely and as early as they choose. To be successful with Verbenas it is necessary to start with strong clean cuttings, and these can seldom be procured from those plants growing and flowering in the ordinary flower beds. Place out a few young plants on well-manured ground, mulch with short manure, and water occasionally with liquid manure, also pinch off all the bloom, and the result will be abundance of strong sappy growths from the main stem, and it is these which strike freely in August or early in September. The same treatment exactly meets the requirements of the Violas, Ageratums, and Lantanas. Lobelias will also yield cuttings in the same way. Many, however, depend upon old autumn-lifted plants to furnish the requisite number of cuttings, but neither Lobelias nor Heliotropes, Verbenas, Iresines, Coleuses, and Alternantheras can be transplanted and wintered with any certainty, especially if at all injured by early frosts.

Our plan with Lobelias is to place a number of young plants thinly in boxes of good soil, standing them in a cool open position, preventing flowering, and wintering them in a cold pit. In the spring every plant may be divided into a considerable number of already rooted pieces, and plants thus easily obtained are much preferable to seedlings. It is also advisable to keep a number of Alternantheras in well-drained boxes of light and fairly rich soil. During the summer they should be stood in a warm open position, kept carefully watered, and be housed before the cold autumn rains are experienced; or if they have to be wintered on the shelves of warm houses they may be potted off during August. A few of each sort of Iresines and Heliotropes may well be potted, using 5-inch pots and rich light soil. These will be serviceable decorative plants, and be sufficiently strong to furnish abundance of cuttings in the spring.

Surplus plants of Sempervivums, notably *S. tabulaeforme*, should have their centres cut or picked out, and this will induce the formation of a number of side shoots, which may eventually be taken off and grown into plants for next season's service. *Echeveria metallica* may be similarly treated, and any old stems from which the tops have been cut and rooted will also furnish a succession of cuttings. Old plants of a good strain of Golden Pyrethrum should be replanted for the purpose of seed-saving, as the strains supplied by some seedsmen cannot always be depended upon.

THE BEE-KEEPER.

PREPARING STOCKS FOR NEXT SEASON.

FAILURES in bee-keeping can often be traced to improper management in the preceding season, which by careful thought and attention might have been averted, thus saving the bee-keeper much trouble and disappointment. Arrangements and preparations for next year should at once be made. Whatever kind of hives are decided upon, let them be thoroughly clean, and, if old, disinfected; have moveable floors, and better if these are made of perforated zinc, having five holes to the inch closed on the under side with wood, so that a recess be formed between the two that the debris will not lodge on the upper floor but fall underneath. The usefulness of these floors, in addition to what I hinted in a previous article, is that when bees are troubled with parasites during warm weather, when they rid themselves of these pests they fall through perforations to the floor underneath (which is easily removed), and can therefore be destroyed in great

numbers. These zinc floors, too, are much more easily disinfected than wood. So well pleased am I with them in every respect that I will neither recommend nor use any others. One objection may be raised by those having round or octagon hives requiring for easy working square floors, but this objection is easily overcome. A belt or rim of strong zinc is made the size and shape of the hive at least 1 inch deep. The perforated zinc is now soldered to the upper edge and wood is fitted in beneath, the centre of it being made to slide out and in for ventilation and cleaning, which is easily done if the bearings are on the outer edges.

Another important matter in hives is to have the mouth or entrance extending at least 1 foot with a regulating slide. Many entrances are by far too small, but where perforated zinc is used these may be less. Whenever bees crowd out and fan much it is a sign that ventilation is required. When this is neglected the incoming of honey is lessened, while overheating with a chill immediately after is certain to cause foul brood.

The crowns of the hives should have all arrangements necessary for supering and insensible upward ventilation. Straw hives should have the centre hole covered with perforated zinc, and have slits for supering at the outer sides. Frame hives would be much improved if lateral slides were attached to every frame, but perhaps it will be difficult to persuade those used to the old style of frames, so I will address myself to new beginners, supplementing what I have already said on the subject. The bee-keeper must bear in mind that no hive is large enough unless it contains within its walls not less than about 1800 superficial inches of double-sided comb, and this comb should never be disturbed unless when actually necessary. All surplus honey should be obtained from supers.

The form of the hive in this variable and uncertain climate is of great importance. Look at a swarm suspended on a bough; then you get the idea that the circle, if not too wide, is the natural form, and the one in which the bees will thrive best and store most honey.

The next point to consider is the stocking of the hive. That should be done immediately, so that the hive be thoroughly filled with combs made from honey, for be it observed that combs made from sugar are more brittle than those made from honey. Care should be taken that there be not an excess of drone comb. The bees having young queens are not so liable to make drone comb as those having an aged queen. Then all hives should be filled this season, as when space is left to be filled next spring drone comb is almost sure to be built. Where comb foundation is used it encourages bees to build worker comb, but not always. Straw cylinders fitted with bars and frame hives are easily managed and drone comb controlled. It is different with common straw hives. Foundation cannot be used in these to advantage, but one advantage they possess over all others is, with their "ram-horn" combs the bees are provided with the best wintering hive in existence. A mere handful of bees in such hives, if kept dry, will not only survive the severest winter, but will often advance and pass those four times their strength located in the beautiful modern straight combs. Bee-keepers find such large straw hives cheap, and, cheaply covered, putting the swarms into Stewarton hives with combs which have been kept over from the previous year, perhaps the easiest and most profitable system of bee-keeping.

To fix the foundation in frames, the safest and easiest plan is to have a groove in a bar one-eighth of an inch deep; in this put the sheet. Lift with a teaspoon from a gluepot the melted wax, hot, but not boiling. Pour the wax first on one side, then on the other as the first side sets, holding the frame slightly inclined so that the wax runs freely from the higher end to the lower one. If the sheet is full-sized it will be necessary to "clasp" the sheet on each side by a piece of bent tin or zinc which is wide enough to pass over the bottom bar. Whenever the wax is set turn the frame on the end and place in position. Full-sized sheets should be about three-quarters or half an inch from the bottom rail, but should nearly touch the ends of the frames. This allows for the vertical stretching of the sheet, and insures the frame being fastened to the ends, so that the combs are rigid in the frames, and insuring safe manipulation and preventing collapse when in transit. To insure the comb being built to the bottom rail I allow a space of five-eighths between the bottom of the frames and the floor; this bottom space admits a fountain-feeder when necessary. When full sheets are used a few holes for passages should be made in the sheets by passing a hot wire through them where required. When bees are put into sheets of full size give them the scope of the hive until they have extended and secured a position; then, but not till then, they may be contracted if necessary. As in contracting a swarm into little space the combs are liable to collapse, at no time should bees be confined too

much; always give allowance so that their working is not interfered with.

As feeding is a necessary evil, and taking combs and honey from stock an unnecessary evil, avoid both as much as possible. If properly managed there will never be an excess of honey in stock or brood nest then. When a stock hive's stores are not interfered with, the pollen, so essential for breeding in spring, is not destroyed. With abundance of honey and pollen in store the bees are prepared to begin in the spring under very favourable circumstances, and will amply repay the bee-keeper with an abundant harvest for the little extra honey left in the hive in autumn. Of course no such hive is to be allowed to enter upon winter with other than a young queen of the current year. It is advisable to apportion a number of hives as non-swarmer. This is best effected, and, in fact, the only sure plan to prevent swarming, is to have roomy hives with a young prolific queen, attention being paid to under ventilation and to pile on supers as required. The proper time to do so is when the previous one has been well combed.

If the apiarian pays strict attention to the foregoing hints he will be satisfied with the results, while he will be saved from much trouble in feeding and anxiety for the safety of the bees, and will in the end have more honey than under any other system; foul brood and dysentery will be of rare occurrence, and the combs will be always fresh and sweet. The following will more fully illustrate the outline of management and give an idea what is required. It may not be out of place to mention here one case of profit from bees. A gentleman with whom I was acquainted made on an average for many years £30 sterling from six hives. Assuming a person is desirous of keeping a few hives, say a dozen, I would advise these to be composed of six large straw stocks stocked as advised. Six similar empty ones will be required to put the second swarms into to form stocks for next season. The six top swarms I would put into four Stewarton hives. Two of these would be stocked with single swarms, the other two with two swarms each; this makes up the six top swarms. These four hives will require say a dozen supers. For non-swarmer hives I would have two Stewarton hives complete, with at least six supers for each stock; the remaining four I would have frame hives, as these, or square Stewartons, are best for queen-rearing; but as there are so many ways of managing frame hives I will leave that to the inclination of the bee-keeper.

These eight hives in an ordinary season will have increased to eighteen, which may be reduced to the original number kept or sold. The six old straw hives at the end of three weeks from swarming should be turned, and the bees returned to empty hives; or, perhaps, better to join these to the second swarm, which must not be interfered with, unless the protracted season may have allowed them to fill supers. The four Stewartons must now be deprived of all heavy top boxes, the under ones stocked with pollen carefully preserved till next season, and the bees of these added to the two non-swarmer ones, the surplus honey of which has also been removed. It will now be clear that the great advantage gained and to be gained by having strong hives must be giving the greatest amount of honey and least trouble with the fewest stocks. It is impossible for anyone to give accurate instructions beforehand, so much depends on the situation and the weather; but it is a fact that the greatest number of bees always gather the greatest amount of honey both in poor as well as in rich districts.—LANARKSHIRE BEE-KEEPER.

ARTIFICIAL SWARMS.

CAN I without risk of loss take artificial swarms from two stocks in separate boxes but only 1 foot asunder? There is plenty of space on the outer sides. If so, how?—T. M.

[Artificial swarms can be taken in the ordinary way. Be sure the queen is with the driven bees, then remove old stocks as far away as possible. Also be sure that sufficient bees are left in the old stock, so that the brood does not suffer. Place the awarms on the old stock's site, and imitate its appearance as much as possible. If boxes of the same size were used the floorboards under the old stocks might be placed under the new swarm; but as there is danger in perpetuating foul brood by this plan, if it has been present in the old stock, it will be safer to try them without, as generally speaking, if old stock is far removed there is no difficulty at this season.]

LATERAL SLIDES.

MANY thanks for your reply to my query about supering and for the suggestions of "A Lanarkshire Bee-keeper." With the appliances that he mentions all difficulty would cease, and if I ever buy any fresh bar-frame hives I shall not forget what he says. My hives have neither slides nor adapting boards, and of course the quilts are at once propolised. "A Lanarkshire Bee-keeper" speaks of a lateral slide for every frame. I have

never seen such lateral slides, and should be very glad to know if they can be adapted to ordinary bar-frame hives, either empty or inhabited ones. I have never used carbolic acid when doing anything among bees. I hope soon to take some honey, and as the sections are all open at the top I shall try the effect of the acid if the disposition of the bees seems to render it necessary.—PHILOKEPOS.

[Lateral slides can be fitted to inhabited hives. Any handy person can soon mount empty ones. Procure some clean one-eighth-of-an-inch wood cut into strips the length of top bar and $1\frac{1}{8}$ inch broad. Now, if the frames have not broad shoulders make them so by nailing on pieces of proper size, so that the frame when finished will measure $1\frac{1}{2}$ inch broad. Then bend pieces of tin or sheet brass between a backflap hinge, so that the frame will measure $1\frac{1}{2}$ inch broad when bent and an eighth more than the thickness of the frame. This one-eighth allows the thin slide to run beneath, and if one side is checked one-quarter that allows them to be either close or any width up to a quarter of an inch. Any propolis bees use on these slides does not hinder in the slightest any manipulation. If the foregoing does not enable "Philo-pekos" to proceed, a sample frame can be sent him by applying to Messrs. George Neighbour & Sons, 149, Regent Street, London. They will supply him with these or a pattern.]

TRADE CATALOGUES RECEIVED.

J. Sylvester, Idle, near Bradford.—*List of Dahlias and Bedding Plants.*
Francis & Arthur Dickson, Upton Nurseries, Chester.—*Catalogue of Stove, Greenhouse, and Bedding Plants.*
Dammann & Co., Portici, near Naples.—*List of Bulbs and Roots.*



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Cucumbers (H. G. B.).—We are obliged to you for the examples, but they are insufficient for the purpose.

Long-podded Bean (R. C. F.).—The name of the Bean of which you have sent pods is *Dolichos sesquipedalis*, or a variety of it. The pods are eatable in a young state, and the plants would probably succeed in rich soil and a warm position out of doors in summer, but better under glass. It will be referred to again.

The Germander Plant (R. H. R.).—We did not receive your first letter, or it would have been attended to. The common Germander is *Teucrium Chamædrys*, which is esteemed chiefly as a mild aperient and corroborant in uterine, rheumatic, gouty, and serofulous affections, and intermittent fevers. It formed an ingredient in the once celebrated gout medicine called Portland powder. *Veronica Chamædrys* is also known as the Germander Speedwell, and has been used as a substitute for tea.

Vine Leaves Deficient in Chlorophyll (J. W. B.).—The leaves you sent, though large, are thin, and the cells in the spaces between the veins are deficient in green colouring matter (chlorophyll), which causes the light appearance. This is probably due to overcropping and weakness, as the cell growth has exceeded the supply of nitrogenous matters necessary to the formation of the chlorophyll. A similar result is seen in the case of many etiolated or blanched plants that have been grown rapidly either in great heat or a dark position, the strength of the plants being exhausted in the cell-increase, and contain little besides water. Possibly also there is not sufficient potash in the border, as this often has a similar effect.

White Maggots in Garden (Anxious).—White maggots can usually be destroyed by watering the plants attacked with clear lime water, but one application will not suffice. It is safe, and you cannot make it too strong provided it is perfectly clear. Brown leathery-looking maggots are more difficult to extirpate, and in reference to these see our reply to another correspondent. If the present angle iron supports are insufficient for your stage we can only suggest that you obtain stronger or place them closer together, with upright supports of wood or masonry for rendering the stage firm.

Seaside Shrubs (W. D.).—No evergreens are grown so extensively at Brighton and other fashionable resorts on the south coast as *Euonymus* are. The luxuriance of these shrubs at Brighton is surprising to persons who have only seen examples in inland gardens. There are a number of varieties,

but we do not know of one exactly answering to the description of a "Portugal Laurel with light green foliage;" it may, however, be *Euonymus latifolius*. If any of our south-coast readers can give any further information on the point they may feel to be needed we shall be glad to hear from them.

Grubs in Garden (*M. M., Co. Down*).—There appears to be a plague of maggots this year, yours being the third letter of inquiry on the subject this week. We can only refer you to our replies to two other correspondents and recommend you to try the remedies suggested. We believe petroleum as burned in lamps will be effective, if you can ascertain by experiment the quantity to use with safety. It mixes better in water in which a little soap and soda have been dissolved than in pure water. We shall be glad if experiments can be made both with petroleum, hellebore tea, and lime water in eradicating grubs, and if mixtures can be prepared that will accomplish this and yet not injure plants the particulars will be very acceptable.

Seedling Fuchsias (*J. B., Ruabon*).—The flowers were unfortunately much crushed in transit, so much so that the sepals of all the expanded flowers were bent quite back to the tubes, so that we are unable to distinguish clearly which variety you allude to as the "reflexed" one. The question, however, is not material. The flower with the short tube has unusually rich sepals, bright coral red, and the corolla, much crushed, seems to possess substance. This we think the most meritorious, and likely to be effective for decorative purposes. The other with long tubes is also attractive, and if the plant is a strong grower would be admirably adapted for training to a roof. Although both the varieties are worthy of preservation, we doubt if they would be regarded of any commercial value by a florist, as there are so many varieties with better formed flowers in cultivation; still, the apparent freedom of growth and floriferousness must render them useful for greenhouse and conservatory decoration.

Grubs in Mushroom Bed (*C. F. T.*).—We are not acquainted with the particular grub which you describe, nor is Mr. Barter, whom we have consulted; but for various kinds of insects he finds either flowers of sulphur or lime sparingly shaken over the surface of the beds a good preventive, or even water slightly salted—say, by mixing 1 to 2 ozs. of salt in a gallon. The only matter in which we are able to adjudge you "wrong" is in not detecting the enemy sooner, and preventing the attack becoming so serious. We are glad your outdoor beds are bearing so splendidly. Try the effect of the salt first, as this will not render the Mushrooms that may be on the bed distasteful.

Destroying Weeds on Walks (*J. C., Cheshire*).—A short time ago several methods were described in the Journal of destroying weeds on walks. Salt is only objectionable by making some walks too moist. In the case of dry walks and positions this objection vanishes, and applied in dry weather salt is effective. Arsenical solutions will kill weeds. Boil 1 lb. of powdered arsenic and 2 lbs. of crushed soda, then dilute with seven gallons of water. Add one part of common vitriol to thirty parts of water, mix and apply. Mix an ounce of crude carbolic acid to each gallon of water prepared, and with this water the gravel. Petroleum will kill weeds; the quantity to use you can easily ascertain by experiment. Whatever is used, Box or Grass edgings must be protected.

Melons Cankered and Leaves Scorched (*G. S.*).—When the scorching of the foliage accompanies the cankering of the stems we always have a suspicion that the soil in which the plants are growing is too wet on the surface and too dry below. Ascertain if this is not so in your case, and if the soil excavated from the bottom of the bed is in the slightest degree dry apply water repeatedly until it is moist. In watering Melons, though we give copious supplies, we never apply it within an inch of the stems, and have no canker. A mixture of lime and powdered charcoal is a good and safe application, but two handfuls at a time is a needlessly large application. A correspondent, Mr. Waiting, has found powdered alum efficacious, but we have not had an opportunity of testing the merits of this. You might try it, and let us know if it answers better than the lime and charcoal. The Fern is *Davallia bullata*.

Soil for Vine Border (*Inquirer*).—Of the two samples sent No. 2 is in our opinion by far the best both for Vines, Cucumbers, Melons, and plants generally that require good loam. No. 1 contains practically no humus, and on the decay of the fibre would run together like a lot of silt. No. 2 would also we think run too closely together in a border. Vines would grow well in it for a few years, but afterwards less satisfactorily if no measures were adopted to encourage surface roots, and nothing added to maintain the porosity of the soil. We should add wood ashes, bones, and lime rubbish with it for a permanent border, and decayed manure or leaf soil for plants in pots and Cucumbers. It will form the basis of a very good border and for general potting purposes.

Grubs in Soil (*G. L.*).—If the grubs are the maggots of the daddy long-legs you will find them extremely difficult to destroy. As grubs attack Lettuce and Cabbage plants recently planted it is advisable to scrape the soil from the plants and place a mixture of soot and lime round them, which will act as a useful barrier against the attacks of the depredators. Watering with a solution of petroleum at the strength of half a wineglassful of the oil to a gallon of water may also check the grub ravages, and act as a manure. A solution of hellebore may also be of service, beating 2 ozs. of hellebore powder into a paste with boiling water, then adding a gallon of cold water for use. You might try these suggested remedies and favour us with the results. Gas lime dug into the ground in the autumn would be beneficial.

Grubs in Eucharis Bulbs (*J. S.*).—We are quite unable to keep in mind the particulars of former letters pertaining to subjects which have been replied to; and when further information is needed the circumstances pertaining to the first inquiry should be recapitulated. If mites are in Eucharis bulbs it will be difficult if not impossible to destroy them without injuring the bulbs. Immersing in clear lime water is one of the safest and best of remedies; then place in small well-drained pots, using turfy loam and an admixture of crushed charcoal, surrounding the bulbs with a little powdered charcoal, and if convenient plunge the pots in bed where they can have bottom heat of 80° to 85°, giving water sparingly until roots are working freely and fresh leaves are produced, when more copious supplies will be necessary.

Exhibiting Roses (*A. A.*).—The blooms should be exhibited in boxes, the stems of the blooms being placed in tubes filled with water, the tubes being embedded in moss, the smoothest and freshest of which should form an emerald surface to display the blooms to the greatest advantage. Each bloom should be cut with as much foliage attached to the stem as possible, but no leaves must be added. If the blooms are cut on the morning of the show they should be secured early and before the dew has evaporated from their petals. The moss in the box must be moist, and the blooms should be arranged so as to stand a few inches above it. Many new beginners spoil their boxes by pressing the blooms close down on the moss. The boxes should have lids, which, especially on sunny mornings, must be kept over the blooms until the last possible moment before the judges enter the show. The subject will be referred to again, and further information given that may be of service to you.

Thrips on Vines (*C. J.*).—Having been a grower of Grapes for forty years you must consider yourself fortunate in not having previously become acquainted with the insects now attacking the foliage—thrips. The attack is, moreover, we are sorry to observe, rather a serious one, and if the insects are not checked they will seriously injure the Vines. Possibly you may have had *Azaleas* in the house, and with these introduced the pest; however, be this as it may, the insect must be extirpated. Fumigations with tobacco or tobacco paper will destroy thrips, the house being moderately filled with smoke on two or three consecutive mild evenings when the foliage is dry, repeating the process in ten days, as other insects will have then hatched from the eggs, that are numerous. Syringing with an insecticide will not be effectual, inasmuch as so many of the insects are on the upper surfaces of the leaves. If you have not many Vines we should have the leaves sponged with either nicotine soap, Gishurst compound, or softsoap and tobacco water, whichever may be at hand. Two ounces of softsoap dissolved in a gallon of water, and from half a pint to a pint of tobacco water added, according to strength, will answer if you cannot readily procure the prepared insecticides. A careful handy person may dress hundreds of leaves during two or three hours before breakfast, and kill thousands of insects. Tobacco smoke in moderate volume will not injure Grapes after they are stoned and up to the colouring period. Whichever method you adopt for eradicating the thrips, we advise you to act promptly.

Grapes Scalded (*A Lady Gardener*).—The injury is chiefly caused by extreme evaporation from the berries, and is the most prevalent when vineries are kept closed too long in the morning, and the sashes then thrown open so widely as to reduce the temperature of the house. Very early and gradually increasing ventilation in advance of the increasing temperature of the vinery is the best preventive, and there should also be sufficient foliage on the Vines to shade the fruit from the direct rays of the sun; failing this slight shade such as sprinkling whitewash on the glass is occasionally advisable. Early ventilation means opening the top lights slightly before the sun has been shining on the house half an hour. This often occurs by or before six o'clock in the morning, while many vineries are not opened until seven or eight o'clock, especially on Sundays. This delay is dangerous, and has often proved disastrous. The berries sent indicate that the Vines are healthy. Violent syringings will so far help to keep in check red spider that it will not do serious injury. Sulphur will check it, and may be mixed with water and applied with a syringe after a thorough washing with pure water. The leaf you sent arrived in a very shrivelled state; it appeared to be as much injured by scorching as by insects. If you have only a few Vines and insects are on the upper surface of the foliage you might have the leaves sponged with a solution of softsoap and tobacco water.

Market Measures (*G. P.*).—In Covent Garden a half sieve contains three and a half imperial gallons. It averages 12½ inches in diameter and 6 inches in depth. A sieve contains seven imperial gallons. Diameter 15 inches, depth 8 inches. A sieve of Peas is equal to one bushel; a sieve of Currants twenty quarts. A bushel sieve ten and a half imperial gallons. Diameter at top 17½ inches, at bottom 17 inches; depth 11½ inches. A bushel basket ought, when heaped, to contain an imperial bushel. Diameter at bottom 10 inches, at top 14½ inches; depth 17 inches. Walnuts, Nuts, Apples, and Potatoes are sold by this measure. A bushel of the last-named cleansed weighs 56 lbs., but 4 lbs. additional are allowed if they are not washed. A pottle is a long tapering basket that holds rather over a pint and a half. A pottle of Strawberries should hold half a gallon, but never holds more than one quart. A pottle of Mushrooms should weigh 1 lb. A hand applies to a bunch of Radishes, which contains from twelve to thirty or more according to the season. A bundle varies according to the supply. Seakale 12 to 18 heads; Rhubarb 20 to 30 stems, according to size; and of Asparagus from 100 to 125 heads. There is no book or paper published that gives the information you require. The published market prices are those paid by the buyers to the sellers of the produce, and are average prices for average goods. Articles of superior quality occasionally realise more than is indicated, while inferior produce fails to obtain the prices as quoted in the market returns.

Plum Leaves Silvery (*N. L. C.*).—We have many times, and in different places, observed the foliage of Plum trees assume a silvery appearance, and the branches afterwards die. We have also noticed that the occurrence has been most frequent when bright and dry days have followed a term of wet and dull weather. We have further found that the trees which have suffered the most were those with apparently fine healthy foliage, and that the leaves after the attack were harsh and dry like smooth paper. As we could not find any trace of insects and mildew to account for the condition of the leaves we attributed the cause of injury to sudden and extreme transpiration—a drying-up of the sap, and the consequent separation of the cuticle from the substance of the leaf, and the cuticle being transparent, must necessarily when raised impart to the leaf a silvery appearance. This is in substance what we have more than once stated; but with the object of gaining further information we submitted some leaves to Mr. Worthington G. Smith, who is an adept in detecting under the microscope, and delineating things hidden from ordinary observers. His reply was in accordance with our own views on the subject. He found the cuticle raised from the leaves and much torn, only adhering to the veins. He attributes this to the substance of the leaf shrinking or drying up, which seems to show that at one period of growth there was a too rapid formation of leaves, and then the growth ceased, and the too much distended material shrunk back and tore itself away from the cuticle. For this serious change to which Plums, and occasionally Peaches and

Laurels, are liable, we regret to say we know of no general remedy. We can only suggest in your case that if your tree makes gross growths to lift it in the autumn and place the roots in fresh loam with an admixture of calcareous matter, making the soil firm, and thus incite the emission of a number of surface fibres, these conducing to sturdier growths and smaller and stouter-textured leaves.

Names of Plants (Thorn).—3, *Viburnum Opulus*; 4, *Listera ovata*; 5, *Cytisus albus*; 6, *Geranium pratense*; 7, *Veronica Beccabunga*. The other specimens were too imperfect to be recognised. (*G. T., Oporto*).—A variety of *Oncidium sarcodes*. The Moss is *Mnium undulatum*, sometimes called the Palm Tree Moss. (*J. J., Lancashire*).—The Cattleyas are both varieties of *C. Mendeli*. The Brassia is *B. verrucosa*, and the Dendrobium is *D. crystallinum*. (*G. W. S.*).—We do not undertake, as we have many times stated, to name varieties of florists' flowers. (*Subscriber*).—1, *Picea pectinata*; 2, *Fagus sylvatica asplenifolia*; 3, *Viburnum Opulus*; 4, *Rhododendrum punctatum*; 5, *Pyrus aria*; 6, *A Sedum*, specimen insufficient.

COVENT GARDEN MARKET.—JUNE 18TH.

A FEW outdoor Strawberries to hand this week, prices being considerably affected. Best Peaches and Pines in demand. Trade as last week.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 5 0	Oranges	100	6 0 to 10 0
Chestnuts	bushel	0 0 0 0	Peaches	per doz.	6 0 12 0
Figs	dozen	4 0 6 0	Pears, kitchen ..	dozen	1 0 1 6
Filberts	lb.	0 0 0 0	„ dessert	dozen	1 0 5 0
Cobs	per lb.	1 3 1 6	Pine Apples English ..	lb.	2 0 5 0
Grapes	lb.	2 0 5 0	Strawberries	lb.	2 0 6 0
Lemon	case	15 0 21 0	St. Michael Pines ..	each	2 0 6 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	0 0 to 1 6
Beans, Kidney ..	lb.	1 0 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 0
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capsicums	100	1 6 2 0	„ Kidney	cwt.	4 0 5 0
Carrots	bunch	0 3 0 4	„ New	cwt.	8 0 14 0
Cauliflowers	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy	bundle	1 0 0 6
Coleworts	doz. bunches	2 0 4 0	Scorzoneria	bundle	1 6 0 6
Cucumbers	each	0 3 0 6	Shallots	lb.	0 3 0 6
Endive	dozen	1 0 2 0	Spinach	bushel	1 0 2 0
Herbs	bunch	0 2 0 0	Tomatoes	lb.	1 0 0 0
Leeks	bunch	0 3 0 4	Turnips	bunch	0 3 0 0
Lettuce	dozen	1 0 1 6	„ New	bunch	1 0 0 0



ARABLE AND PASTURE FARMING.

(Continued from page 478.)

WE must now refer to lands of less value, although not less important to the owners and occupiers—we mean pastures adapted only for dairy purposes, and more or less mixed in occupation with arable lands of many shades and varieties of natural fertility, except on the chalk hills. These are so extensive and form so large a portion of the landed property in the kingdom, that under the present depression in agricultural pursuits they involve, not only interests of unusual magnitude in a commercial point of view, but matters of very serious consequence to agriculture as well as many trades and callings, especially in the inland districts and provincial towns; in fact the welfare of the owners and occupiers of a great part of the land is intimately connected with the general interests of the kingdom. It must also be stated how these properties of mixed soils and situations can be best managed for the interests, not only of the owners and occupiers, but for the class interests of the kingdom also. For by the present mode of conducting many farms, whether occupied by a tenant or in the hands of a home farmer, they are often managed upon a system which is totally inadequate for contending with the difficulties peculiar to times of depression, arising either from a succession of adverse seasons, the low price of corn, or from the continuation of practices both in stocking and cropping ill adapted to the altered circumstances of agriculture, all this being illustrated by facts which are patent to all observers, and which have had serious consequences in connection with all persons connected with the ordinary farms both of arable and pasture land throughout the kingdom. To prove this we need only call attention to the ever-increasing area of untenanted farms, for we notice vale lands in some countries hitherto let (at least up to 1878) at high rents in consequence of the tenants' competition amongst themselves for possession of these farms. The aspect of whole districts is completely changed, so that thousands of acres are untenanted and left in the hands of the owners and the

home farmers in the most foul and reduced condition; and this is the serious condition with which hundreds of home farmers as well as occupying tenants have to contend at the present time. Let us ask what the world and the writers credited with representing public opinion say upon the subject. The cry is general that less corn should be sown and more stock must be kept, and these observations are made often without any reference to the soil or any kind of stock or system of cropping. The only remedy offered quite irrespective of soils or breeds of cattle is that more land should be laid into pasture, that more cattle should be raised including sheep, and also that less corn should be sown. We do not propose to listen to what is said upon such a subject, but in the light of our own experience will endeavour to formulate a mode of treatment by cropping and stocking, which is calculated to meet a set of new circumstances by which a large portion of the farmers of our country are surrounded.

As an illustration of a new departure compared with the usual and former modes of management the case of a farm of 200 acres may be taken, fifty acres being in pasture adapted for dairy farming. The late or former mode of cropping and stocking has been the four-course or Norfolk rotation for the arable, and the stock consisting of sheep to consume the produce of the root-lain upon the land, except a portion of the Mangold crop for feeding dairy cows and young cattle, including perhaps some bullocks fattened in stalls or boxes. The points of disadvantage attending this system of management are as follows: The root-lain being one-fourth of the arable, the Lent corn one-fourth, Clovers, &c., also one-fourth, and the remaining fourth being cropped with Wheat. The fattening bullocks in the boxes always receive roots, and when receiving hay and cake or corn in addition as usually given they do not yield any profit on the transaction. The sheep stock whilst feeding off roots on the land where they were grown do not pay for the roots, much less for the hay, cake, or corn frequently added; and after the working horses have been provided for, the residue of hay, roots, and grazing will not furnish sufficient food for many dairy cows and young stock, although they are really when well bred and well managed, as a butter-making, calf-suckling for veal, or a milk-selling herd the most profitable stock on the farm, commercially speaking. The only items for sale grown or produced on the farm under this system (the hay being all consumed, as also the roots) will be the Wheat crop and a portion of the Lent corn, the remainder being consumed by the horses and swine according to circumstances. Under this system there is only the manure which is valuable arising from the horses, the swine, the dairy cows, and young stock; and lastly the manure left by the sheep on the land where fed. But against this item we must bring forward a formidable indictment. These animals, even when liberally fed with hay and cake on the mixed or strong soils, tread the land to a great disadvantage during at least half the winter period whilst fattening; therefore one-half of the land is deteriorated and requires extra labour before sowing the Lent corn. On the other half one-quarter part is sown with Lent corn too late in order to accommodate the sheep; the remaining quarter part whereon was grown roots for use and consumption at the homestead by cattle, horses, and swine, which land will require to be manured from the farmyard before seeding with Lent corn. In adverse seasons, however, the sheep cannot always be sold when the root crops are finished, in which case they either feed on the pasture land to its injury or on the Clovers and Grasses on the arable, and thus reduce the hay produce for the next winter. How are the farmers to find under this the customary mode of cropping and stocking sufficient commercial profits to meet their engagements and all their expenditure? It cannot be done under the best of management, simply because the sheep and bullocks do not pay; and the short acreage of low-priced corn are totally inadequate to meet the comparatively fixed charges of rent, tithes, rates, and taxes, together with incidental charges for labour, tradesmen, seed and manure bills. Here leaving out various accidental contingencies is the cause most glaringly evident, which has produced those extensive failures to which we have previously alluded.

In order to avoid the difficulties which the foregoing mode of management imposes upon the farmers, a new system must be adopted, and for illustration we will take a farm of the same size as that already mentioned, including 50 acres of pasture adapted for feeding dairy cows and young cattle, the object being to produce butter, or veal, or milk for sale, but entirely dispensing with sheep. The rotation of cropping should be as follows, and commonly called a three-course:—First course, Wheat, 50 acres to be prepared for, as stated hereafter; second course, Lent corn, 50 acres of Barley, Oats, or dreg, according to the soil and situation, to be prepared for as follows: 20 acres, part of to be seeded with Greystone Turnip seed immediately after the Wheat is cleared off; a portion to be ploughed and sown between the lines of sheaves every day as fast as ploughed. The young Turnips to be ploughed-in as manure for the Barley to be sown in the following month of March, to be seeded with Red Clover and Trefoil in admixture with Cock's-foot and

Fox-tail grass seeds ; 10 acres part of to be ploughed and sown with Greystone Turnip seed, the crop to be ploughed-in as a preparation for White Canadian Oats ; 20 acres part of to be ploughed directly after harvest, and sown with Giant Rye and ploughed-in during the month of March as a preparation for drege corn. The preparation for the Wheat crop will be as follows :—20 acres out of Clover and grass lea, the second crop to be ploughed-in if the yard manure is insufficient ; 10 acres after White Canadian Oats to be Giant Rye, part cut up for horses and cows and part ploughed-in, but together ploughed and sown with Mangold ; 20 acres after drege, half to be sown with early Peas on the lightest land, followed by Mustards, and half seeded with winter or spring Beans mixed with Winter Vetches or late Partridge Peas. Under this rotation we grow 50 acres of Wheat, 50 acres of Lent corn, and 20 acres of pulse crops. As the rent-paying crops are Wheat, Barley, Oats, also Beans and Peas, according to the soil, it is, therefore, quite clear that large crops, both in acreage and acreable produce, is the chief point worth the attention of the farmer, especially when we consider that rent, tithes, and rates are comparatively fixed charges, and will be met most easily in the future by an increased acreage of sale crops. It makes all the difference between profit or loss whether half the land under tillage only is cropped with sale crops or is extended to two-thirds, for the fixed charges are the same in either case. Again, it is worth inquiry what real profit is contributed by sheep. Although they are in some cases said to pay the rent, let it be fairly calculated what remains as a commercial profit after charging interest on the large capital employed, and the heavy charges for labour directly and indirectly connected with sheep-farming. It ought to be considered that large outlays in feeding stuffs are made where sheep are said to pay the rent, accompanied by a reduced acreage of the rent-paying crops, delays of seed time, extra tillage required, the losses of the flock, which cannot always be controlled, and, finally, the crops consumed, or, commercially speaking, sold to the sheep, even at a very low price, nothing is left but the manure on the land. After estimating this, in comparison with other systems of cropping, it will be found that we can obtain or purchase manure cheaper than the sheep can make it. In conclusion, it is by comparison only that just estimates of anything can be made. Let it be made between sheep-farming and ploughing-in green or root crops as manure for the production of sale crops. For information upon systems of farming adapted for other soils we refer our readers to former numbers of this Journal under various headings.

WORK ON THE HOME FARM.

Horse Labour.—The mowing machine on the arable land and the scythe on the majority of meadow lands will now be in full work ; and the horses should not be worked on the machine more than four or five hours, and then take a change of animals for a similar time. In this way eight hours of horse labour will be found sufficient, except at carting and stacking of the hay, when the work may be considered in reference to circumstances only up to sunset. There was a plan formerly adopted which had our entire approval when the weather proved favourable for both hay-carting, preparing and drilling of Swede, and early Turnip seeds—that was to work in connection with cultivating and drilling for root crops up to about an hour before mid-day, and carting and stacking hay afterwards ; in fact the hay is always better in condition for stacking in the after part of the day than in the forenoon, especially where the weather is settled fine ; even then, however, we frequently get heavy fogs or mists in the mornings which often retard and delay the condition of the hay up to mid-day. In stormy weather setting in when the grasses and Clovers are in bloom, ensilage is then the best prospect for obtaining the best kind of winter fodder for home consumption ; but even this system as far as it has proceeded is not quite satisfactory upon all points, irrespective of the cost and providing of pits or silos, although a great improvement upon ordinary hay-making in our fickle climate, especially in a season like that of last year, when in most districts very little hay was stacked in really good condition. There is, however, another view of the value both of field and meadow grass as compared with its winter use, for there is no mode whereby more advantage can be obtained from an acre of grass than when used in its green state, being cut for soiling cattle daily either for fattening cattle or feeding young store cattle—that is, in making both meat and manure ; for we hold that the value of grass for making meat is much greater, especially when used in summer than when used as hay in the winter months, or whether grass has been secured either in the stack or in the silo, for we reckon also that the manure made from grass-feeding is of nearly double the value of that made from hay. It may be said that the hay will be required for feeding cattle in the winter ; but we ask why ? It has been proved by a common practice in Hampshire and other districts that when cattle get a full allowance of cut roots in the boxes, mixed with 4 lbs. of cake and 1 lb. of Bean or Maize meal daily, that good sound Oat straw is far better than the best hay for the bullocks fattening as regards not only their health and regular feeding, but also by the benefit shown on a debtor and creditor account. The hay-feeding adds at least 2s. 6d. per week to the cost of feeding, and frequently proves a clogging and indigestible addition to a well-arranged and adjusted system of feeding, in which case the cattle often refuse their food for a day or two, and thereby lose

flesh instead of gaining it, for Nature never stands still, but is either improving or receding more or less. The feeding of dairy cows at the stalls is a matter requiring a separate and further consideration, for no doubt the land will yield a heavier acreable produce when cut for soiling than when grazing, and the food can be the better adjusted as to a sufficiency for the production of a full record of milk than by the grazing system. This is frequently affected by the state of the weather not only as to state of the grass in extremes of wet or drought, but also as to the generally well-regulated condition of the cows as to grass-feeding at the troughs, but at the same time that of any artificial or supplementary food necessary for them to receive at the rack or manger.

Hand Labour.—Horses will now be fully employed hoeing the Mangolds and other early roots, such as Swedes, Cabbages, &c., and especially where the land is clean and the men can be depended upon to make fairly good work in setting out the plants ; yet it is hardly ever done so correctly in singling the plants as it ought to be. We therefore advise that women or young people should follow the hoers and single out the plants by hand-pulling, taking care to leave the strongest of them ; at the same time the hoers should be given to understand that they also should be the strongest plants within their reach, although they may happen to be a few inches wider apart than may otherwise be desirable. Hay-making, as well as cutting and collecting the coarsest grasses in the pastures, should now be carried on at intervals by making and carting hay, whether of Clover or Sainfoin, in fine weather, resorting to the work of filling the silos in damp or in weather unsuitable for hay-carting. It cannot, however, yet be said that many are prepared to secure grass in the silo for several reasons. The first is that they have not made any silo ; another reason that it is generally believed there is yet something to be learned as to the value of ensilage, and the best materials for making it, and the cost at which a silo may be constructed under varying circumstances of soil and situation.

Live Stock.—On the hill farms where large flocks of breeding sheep are maintained in the summer season the home farmer should look to the field and roadside ponds, because where they are judiciously constructed so that overflows of water during a thunder storm may flow into them they yield a valuable supply for the stock, especially in some instances where farms are often miles away from the rivulets, brooks, and springs of the vales. Dairy cows and young cattle should all have easy access to water by arrangement, or at the horse stalls, in which case it is a good plan to house them from ten o'clock in the morning to four in the afternoon in very hot and dry weather, taking care to make the stalls dark, for the flies follow the sunlight ; and at the same time let the animals have a good bait of green fodder in their racks at milking-time night and morning. This will enable them to hold on and lengthen the milking period, and improve the record of milk ; whereas if the animals are left in park or pasture lands in the shade of trees during the heat of the day, they are so distressed by flies that they will yield but little milk, and leave their droppings where no benefit will be derived. In those cases where calves are suckled for making veal instead of making butter or selling milk it may be made very beneficial, for it requires but little labour and but little risk, and for veal there is always a ready sale. There is at the same time no better plan of using cake or Maize meal than for feeding calves whilst suckling, as they can be held on until they are very choice in quality and of heavy weights. The plan is at first to make meal or cake into balls mixed with milk, and given as such they will soon learn to take it from the hand, and afterwards take it as pudding from the troughs. Large quantities of veal can be made in this way by the suckling of very few cows. In outlying situations there are no daily deliveries of milk or butter to the nearest town—an important point in dairy farming ; nor is there any difficulty of obtaining calves from the cheese-making districts of the midland counties or western border counties, as they can be now easily delivered by rail at short notice. We reckon the Devon calves make the best quality for moderate weights, the Herefords being next in quality of heavier weights, but the Shorthorn calves make coarser veal and more bony than the other breeds.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. 51° 32' 40" N.; Long. 0° 8' 0" W.; Altitude, 111 feet.

DATE.		9 A.M.					IN THE DAY.				Rain
1884. June.		Barometer at 32° and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.		
			Dry.	Wet.			Max.	Min.	In sun.	On grass.	
Inches.	deg.										
Sunday	8	29.791	55.0	52.1	N.W.	53.9	61.3	45.7	92.2	39.9	0.127
Monday	9	29.873	48.7	46.5	N.W.	53.7	59.4	44.6	90.4	44.3	0.030
Tuesday	10	30.097	54.5	51.0	N.	53.4	67.2	46.6	110.3	39.8	—
Wednesday ..	11	30.184	62.1	55.9	Var.	54.6	67.2	46.7	112.6	43.4	—
Thursday	12	30.317	67.1	60.6	N.E.	55.1	77.6	54.7	117.3	56.4	—
Friday	13	30.319	65.2	58.0	N.E.	57.5	75.7	50.4	117.8	47.6	—
Saturday	14	30.259	64.0	58.2	N.E.	58.3	72.9	56.3	116.8	52.7	—
		30.120	59.5	54.6		55.2	68.8	49.3	108.2	45.4	0.157

REMARKS.

8th.—Dull, with slight rain at 6 P.M., and heavier between 10.30 P.M. and midnight.
9th.—Dull, with shower at 5 P.M.
10th.—Fine and warmer.
11th.—Fine bright morning, cloudy afternoon.
12th.—Fine and warm.
13th.—Fine.
14th.—Fine, but hazy in evening.
A fine week, of just the average temperature.—G. J. SYMONS.



COMING EVENTS

26	TH	Richmond Show.	
27	F		
28	S	West Kent Show, Chislehurst.	
29	SUN	3RD SUNDAY AFTER TRINITY.	
30	M		[Exhibition; Stoke Bishop Show.
1	TU	National Rose Society, Kensington; Edinburgh International Forestry	
2	W	Royal Botanic Society's Evening Fête; Hull Show (three days);	
			[Wimbledon, and Cardiff Shows

THE USE AND ABUSE OF THE WATERING POT.

NOW-A-DAYS, when so much is written by able cultivators on every conceivable subject connected with gardening, if a person waits until he can write on something new the probability is that he will never write at all. It is quite clear, however, that this is no valid excuse for silence, as abundant evidence is afforded on every hand that the old and essential routine practices are not thoroughly understood by all; nor is it likely they ever will be, since the young and inexperienced are always with us, and will be to the end of the chapter.

It may appear a somewhat strange, not to say bold, statement to make, that there are numbers of young gardeners in charge of good gardens at the present time who do not know how to dig. They do not even know where to begin nor how to finish a piece of land, while in such simple work as raking and mowing they betray their incapacity the moment they attempt to use the implements, and provoke the smiles of old practitioners. There is some excuse for this, as persons who are in many other matters competent have not had experience in outdoor duties. There is need, then, for plain teaching on plain subjects, and it is the more desirable to recognise this when it is remembered that the plainest of operations are the most important, and amongst the plainest of the plain is watering.

Although some excuse is conceded to a young gardener who may not be able to use the commonest of tools, the spade, rake, scythe, edging shears in a workmanlike manner, the same indulgence cannot be granted him for the mistakes he makes in watering, for he has been either using or abusing the watering pot day by day for years. During that time he has either endeavoured to make himself proficient by close and intelligent observation and attentive care, or he has gone on dabbling in a haphazard manner, and never quite sure whether he has been doing right or wrong; nor is he sure now.

There are numbers of such men engaged in gardens, to the great discomfort of the responsible gardener under whom they serve—that is, if he is a skilful cultivator and consequently an expert in the work in question; for no man can be either a competent grower of plants or fruit who is not first competent in the most important of all duties pertaining to that end—watering.

A young man who has made himself capable in the use of the watering pot, and can be trusted implicitly to exercise sound judgment and make few or no mistakes, is prized by his superior whose time is occupied in other duties, which he can discharge without any misgivings when he feels he is so well supported; but a slap-dash hit-and-miss kind of man, who gives too much water in winter and too little in summer, and who cannot or does not discriminate between the requirements of plants recently potted and those long established and crowding the pots with roots, is a hinderer rather than a helper—the cause of much anxiety, an impediment in the way of smooth working, an obstructor of success.

To be a good gardener a man must first train himself to the use, and not allow himself to indulge in the abuse of the watering pot. He must cultivate his perceptive faculties, and be able to judge accurately and quickly as to the real condition of a plant, and act accordingly. If water is needed it should be given promptly and sufficiently, if not needed it should be withheld until it is. There is no safe intermediate course. It is a great and far too common error to suppose that a plant may not be dry enough to be well watered, but sufficiently so to be half watered, hence a little is given to moisten the surface in the way of a compromise. This is a dangerous practice, and the more so since the person who commences it is exceedingly liable to continue until the habit is so firmly fixed that it is difficult to abandon and adopt a sounder and a better course. This slipshod manner of watering is the forerunner of half the failures in gardening, the origin of insects innumerable which instinctively attack enervated growths; it is the cause of nine-tenths of the failures by plants damping off, of half the cankering that occurs in the stems of Melons or Cucumbers, of multitudes of fruit not setting and swelling, of shoals of blossom buds falling—in fact, the abuse of the watering pot is the root of the majority of the evils and annoyances that occur in the career of the gardener.

Frequently, indeed much too frequently, there is no room for doubt as to whether a plant needs watering or not. Its flagging leaves and drooping flowers proclaim alike its urgent want and the neglect of some individual whose duty it was to have prevented such a collapse. The man who cannot foresee the requirements of plants, but waits the expression of their suffering—flaccidly hanging leaves—can never be a good cultivator, and plants that are subjected to that exhaustive treatment can never flourish, and the only thing thriving about them will be insects. And another thing, when plants are subjected to that negligent system of treatment, more time is occupied in keeping them in even a half-presentable state, and more water is used than if they are supplied in anticipation of their urgent need; for in the one case the water runs out of the soil nearly as fast as it is poured in, and the signal of distress, withering foliage, is seen again in an hour in hot weather. Plants thus managed or mismanaged may be watered four times a day and not be satisfied, while those properly treated by never being allowed to be actually dry will be well and sufficiently supported by two applications. There is no exaggeration here; the case is, in fact, understated, as all who are capable of judging correctly know full well. If it is an abuse of the watering pot to act on what may be termed the suffering principle, that involves both waste of water and waste of time, it would be interesting to know what it is. Nor does the abuse end in those two wastes, for there is a third—a direct and immediate waste of the virtues of the soil, which are positively washed away instead of being retained for the sustenance of the plants. The best loam may be purchased at a guinea or more a load, and all other ingredients for mixing with it may be of the best; the compost may be blended in the best possible manner, so as to contain exactly what may be needed for the sustenance of the plant, but the abuse of the watering pot will spoil all. A person competent in the use of the watering pot will produce far better results with inferior soil than will another who is incompetent yet having the best soil in the world at his disposal. This is no imaginative theory, but simple sober fact.

There are times, as all know who have had much experience in plant and fruit culture, when thought and discrimination are needed on the subject of watering. A plant may be neither exactly dry nor decidedly wet at the usual time when water is given. In such a case a moment's reflection is needed. If the plant has only been shifted for a few days it may be wise to pass it; if it is established and the pot crowded with roots it would be wise to water it. Plants in that intermediary state as to root-moisture may also be

safely passed occasionally when the weather is dull that it would be a mistake not to water if a hot day were pending. After long practice and close observation a man judges, as if intuitively; but this habit of quick and correct decision can only be attained by long and diligent watchfulness. It is lamentable to see the shortcomings of men in the important work in question, and to observe plants in their charge—on the one hand soddened by excessive watering before the roots have taken possession of the soil, and on the other hand established plants languishing by the lack of adequate support. A sharp rap of the pot with the knuckles and a moment's reflection on the condition of the plant and the prospective weather will usually guide the observant man aright.

Watering is something more than a mere routine operation requiring a certain amount of physical exercise. It is a mental process, and is as much a question of brainwork as is the writing of these notes. Let, then, the brain be exercised in the work under notice—indeed, in all work—and thereby strengthened; for as surely as the muscles of the blacksmith are developed by labour, so are the mental powers of man increased in force by healthy exercise. Without this there can be no skilled labour, and if a gardener is not a skilled worker he is nothing. He is simply playing a game of chance, and in nothing is he so likely to lose as in watering; as when he is deluded by the supposition that he is using the watering pot effectively, the probability is that he is abusing it all the time, and before he is forty years of age he is a disappointed man.—EXPERIENTIA DOCET.

AMONG THE FLOWERS.

OUT-OF-DOOR flowers are now yielding their richest harvest of bloom, and borders, beds, and clumps are gayer than at any other period of the year. True, the sentiment which has become attached to spring flowers is lacking. Drooping Snowdrop, blade and flower, has long ago disappeared, and we find no clumps of yellow Crocuses, with "golden-chaliced cups" shining in the mid-day sun, and haunted during glimpses of the "glorious king of day" by bees too easily tempted from their homes. No gaudy Tulips flaunt their buds of richest hues among sweet white Arabis or blue Forget-me-not, or Aubrietias of more sober tints. No Daffodils to tempt us maunder into rhyme, or retaining our sober reason to bury our noses in bunches of "Coddins and Cream," or Jonquils of richer scent, or the more harmoniously refined Poet's Narciss, and draw the subtle essence thence. Nor are our present-time flowers so stately or so glowing in colour as are the flowers of autumn. The day of the Dahlia is not yet, nor has the Hollyhock towered its stately spike above its compeers. We must wait for the queenly Gladiolus, the flaming Tritoma, and the large yellow Evening Primrose. Lovely Japanese Windflowers, and sweet-scented Phloxes, staring Asters, Sweet Peas, and Chrysanthemums—precursors of our early winter queen of flowers—are all to be waited for. But—and how shall I begin to select from so large a list?—we have Pinks, the very name carrying with it some of the sweetness of the flower. Pinks in hundreds, in row, in bed, in border, double white and double pink; and kinds like these, but with wondrous names, "Border Pinks" and forcing Pinks, Clove Pinks and florists' Pinks, and, only like in name, the splendid sorts of Mule Pinks. Pinks form a garden in themselves. What must a garden be without them, if such a one there be? Every garden, however, has its Roses, but it is not every garden which is possessed of Damask, York-and-Lancaster, Scotch, and Cramoisie Roses. These should all find a place in borders of perennial flowers, and, add to these Moss Roses and Cabbage Roses, Madame Hardy, Paul Ricaut, Coupe d'Hébé, Général Jacqueminot, Gloire de Dijon, John Hopper, and Géant des Batailles.

These are the kinds that men and women no longer young love to fondle and talk of to their grandchildren. Old-fashioned, no doubt, and obliterated most of them from present-day Rose lists, but Roses which bring forgotten memories to life, and, therefore, themselves instinct with living memories. Then here and there we find a clump of Heartsease—Pansies that were planted several years ago, and which have yielded their flowers at almost all seasons, but at none so so luxuriantly as at this. True, the flowers are not so large as the young thriving stock in a neighbouring bed, but on the whole their effect is much prettier, and we can cut and come again to these without any feeling of having behaved extravagantly. Some of the Violas are also found here; Alpha, for instance, with deep purple blooms, and in large masses, and Picturata, of a curious shade of lilac, but

telling in the extreme. We also find the dwarf white Rocket with Hyacinth-like spikes, and the taller-growing kind with looser spikes, and produced in greater freedom, and redolent with the never-to-be-forgotten scent of the common Rocket. Here are also the old dark double Wallflower and the little double yellow sort so seldom seen now; and more seldom seen still is the double Rock Cress, with its bunches of tiny button-like flowers.

Saxifragas in great variety are becoming dirty-looking, and the latest of the white perennial Candytufts (*Iberis corifolia*) will soon follow. The blue of the Gentianellas gives place to that of numerous kinds of dwarf Campanulas—pumila, Portenschlagiana, muralis, to garganica and its varieties, turbinata, carpatia, the Harebell, to taller kinds like Hendersonii, Van Houttei, the Peach-leaved varieties, and many others. Pyrethrums of themselves make quite a show, the taller-growing single kinds growing further back than those with double flowers. The same may be said of the Columbines, which have now begun their reign; cærulea, white and blue; vulgaris, none the less pretty for being a weed; californica, chrysantha, and nudicaule, some of them not yet in flower, but hastening fast forward. Then huge clumps of the many-fingered Lupin in white and shades of blue and purple, and variegated white and blue, make the almost flowerless background bright with flowers.

The Delphiniums also, with wondrous shades of blue and mauve, and spikes which yield to the Hollyhock alone, are now beginning their yearly festival. Space would entirely fail me to recapitulate the smaller things which go to make the groups complete. Of hardy Orchis and Day Lilies—to Scotchmen always suggestive of the Ettrick Shepherd and the old man and his bonnie Nannie—and Welsh Poppies drooping their yellow heads in the shade, and lifting them again to woo the returning sun, or those with blooms of glowing crimson or scarlet, with petals like crimped satin; but, oh! so quickly past. Satin reminds one of the white Polemonium, prettier even than the Sisyrinchium of the earlier months. The Polemonium Richardsoni, also now in great beauty, globular clumps of light blue. Here we come to the New Zealand Daisy, with starry blooms, white, rose, and pink; there to a broad mass of *Ourisia coccinea*; here to the soft violet *Pentstemon procerus*. A little way we find a mass of soft rose blooms (*Saponaria ocymoides*), and just behind the brilliant double *Lychnis viscaria*, and further on the showier single form of the same. The peculiar blue *Ajuga genevensis* is contrasted with a *Mimulus*, and the *Mimulus* nestles beside a bunchy *Geranium*. These spikes, so like white Roman Hyacinths, are the white *Lychnis viscaria*. That flag-leaved plant, with half a dozen large blue flowers on each spike, is *Iris pallida*. We smell it, and it is aromatic to a degree. These handsome plants of the same species, with shaded flowers of white or lilac, blue or purple, are the English Iris. Here are *Alstroemerias* just beginning their annual feast of beauty, with glorious bunches of the species aurea; there are *Tradescantias* of various sorts; this lilac upright plant the beautiful *Erigeron*; this more upright still, and only a little darker, *Stenactis speciosa*. We miss here the Foxglove, but we shall find it nestling at the base of shrubs, with Hollyhocks and Columbines, or companying with Lilies among Rhododendrons. There we also find the Everlasting Pea rambling over a fallen stump, or with Hop and Honeysuckle hiding the nakedness of some dead shrubs. That mass of grey-green foliage, topped with feathery spikes of white, standing isolated on the grassy lawn, is *Spiræa Aruncus*. Yonder a group of the common *Aconitum*, and there a specimen of the species *Lycotomum*, with its spikelets of delicate yellow.

Every cranny on this old wall is packed with the little creeping *Linaria* (Toadflax), and wreathed in sweet disorder with *Clematis montana*; while here and there a tall *Verbascum* is sending its grey shoots skyward from the tangle, and Snapdragons, yellow, red, and many-coloured, enliven the living picture. I might catalogue the flowers we missed—Byzantine Gladiolus and the satiny-flowered "Bride"—clumps of darkest crimson—the dwarf Sweet William, bronzy *Heuchera*, or Fern-like *Thalictrum* and Tansy, or *Hemerocallis*, with leaves like lawn, were the green edges wanting, spotted *Pulmonaria*, or yellow-striped Iris. But I stay—all are common flowers, but all are lovely.—SYLVANUS.

VINES BLEEDING.

VARIOUS theories and experiences are recorded in the Journal regarding this subject, and it may be safely said that a great diversity of opinion exists regarding the causes of bleeding in Vines. "In a multitude of counsellors there is wisdom," and no doubt the more opinions and experiences are recorded the better. My experience has been that bleeding has occurred in Vines in the most diverse circumstances. For instance, in one case, Vines with the roots all inside, which are pruned early in autumn, never fail to bleed when started, though the wounds made in pruning have at least three months to heal, and the wood every year is as hard and well ripened as can be. The border does not suffer from excess of moisture, indeed it is rather too much the other way. But the more the Vines in this house bleed the stronger they seem to grow, which is

strange when one reads, that according to eminent authorities, bleeding is very weakening to the Vines. Then again, another house in which the Vines are planted so that the roots are both inside and out, and which has a border that from its situation is always very damp, even inside, which only gets what is given it, and is not exposed to the rains of heaven, shows almost no signs of bleeding, though only pruned about a month before being started again.

The Vines in this house though healthy and strong cannot compare with those in the first-mentioned house which bleed so much. In fact, under all conditions of borders I have seen Vines bleed very profusely; and, again, at other times bleeding has sometimes, when it might reasonably have been expected to occur, been absent. That any hard-and-fast rule can be laid down regarding its appearance or non-appearance seems impossible.

Styptics when carefully applied are effectual in preventing bleeding, but in the cases mentioned the Vines have not been so treated for some years, as experience seemed to teach that the Vines were quite strong enough in spite of the bleeding, which according to some is so injurious. The very latest Vines which are started almost immediately after pruning have styptic applied, but I think even this might be dispensed with.

Unnatural as it seems to be that no injury should be done to Vines by the loss of so much sap, it appears that as much can be said on the one side as the other, and experience also lends its aid to make a decision on the question well nigh impossible. Certain it is that Vines which bleed profusely every year can be pointed out as examples of strength and fruitfulness. It is desirable that experience should be recorded without the writers absolutely taking in hand to assert that their special theory on the matter is the right one. Dogmatic assertions that so and so does so and so, cannot obtain in regard to Vines bleeding. Experience teaches that the subject should be approached in a spirit of mutual inquiry and consultations, and not in a spirit of self-assertion and contradictory effusion.—S.

Mr. WAITING's first statements on this subject were plain, it is true, but is it unjustifiable to ask for proof of statements which, to say the least of it, are open to dispute, and which he, instead of proving, has gone far to disprove? In his first notes he says water is the cause of Vines bleeding; now he says that if the wood be properly ripened before pruning they will not bleed. Surely Mr. Waiting has placed himself in a dilemma, for according to his theory water will not cause Vines to bleed unless the wood has not been properly ripened before pruning; hence improper pruning and not water is the cause of Vines bleeding.

But what of his next statement, coming from one who gives advice, to think more "pruning is an evil." May I ask from what point of view is it so? Mr. Waiting seems here to be reasoning from false premisses. Even if unskilful pruning be one of the causes of bleeding, yet it does not follow that pruning is therefore an evil. Perhaps Mr. Waiting had better take the advice he gives and think more, and if he was also to read more carefully he might find many questions in my notes to which he has given no answer. Before bidding farewell to Mr. Waiting I would just remind him that it takes more than nine bunches 13 inches long to form a chain of 11 feet.

Since I have taken objection to Mr. Waiting's theory in regard to Vines bleeding perhaps there are some ready to ask if I have any better theory to offer. In reply to such I will offer one or two suggestions. I believe that bleeding arises from many different circumstances or combinations of circumstances. The wood improperly ripened is perhaps one of the greatest causes, and great care should be taken during summer and autumn to see that laterals are kept well stopped-in, so that all the light possible may be admitted to help to ripen the wood. Pruning too early or too late will also tend to have the same effect. If the border has been allowed to become dry, and is then given a thorough drenching of water and little fire heat to dry the house, this will also tend to stimulate bleeding. These, with many others, are the causes, but of no one separately can it be said that it is "the" cause.—JUSTITIA.

Mr. WAITING has proved quite enough for me. If powdered alum is so effectual I should have thought he would have used it for his own Vines that bled to their injury, for it seems incredible to me that any practical man should risk the loss of his crop from severe bleeding when the simple application of alum would have stopped it. The fact is Mr. Waiting appears to have got out of his depth on this subject, and he changes or modifies his opinions every week. Mark his statement now—that "Strong Vines bleed because they are full of sap," and weak ones because of "their inability to appropriate the excess of moisture." Wherein lies the difference in the two cases, and how could any Vine appropriate an "excess" of anything? Mr. Waiting's statements indicate a confusion of ideas on the subject.—NON BELIEVER.

THE MARSH MARIGOLDS.

THIS is a small family of plants, all of which are great lovers of water, but yet not aquatics. They delight to have their roots in the water and to spread their branches and brilliant flowers to the breeze, and are found naturally in marshy boggy places or on the margins of running streams or lakes. This will at once teach us how to use them in the garden, and many an ugly pond may be made attractive by the judicious use of these and other bog plants; in fact, such spots may be turned into an ever-changing picture with but little trouble or expense. There the dragon-flies and butterflies will come and disport themselves amongst the beautiful flowers, enriching the effect with their quaint

forms and splendid colours, whilst the chirp of the grasshopper and the soft little song of the sedge-warbler all combine to make us exclaim—

"Oh, Fortune! only bless me thus, 'tis all I ask below.
I do not need the gold that serves for luxury and show;
A quiet home, where birds will come, with freedom, fields, and trees,
My earliest hope, my latest prayer, have coveted but these."

There is little or nothing to add respecting the Marsh Marigolds. Planted in such places as we have already described, all that will be necessary is to see that they do not crowd out any less robust-growing plants, or that others do not crush them.

Caltha palustris.—This fine plant is commonly known as the Marsh Marigold, and more rarely by the name of May-blobs. The small unopened flowers are sometimes pickled and used as substitutes for capers. It is a stout erect-growing plant, with hollow stems and entire kidney-shaped leaves, which are toothed on the edge and bright shining green in colour; flowers large, rich golden yellow. It attains a height of about 2 feet, and commences to open its blooms in the month of April, continuing in favourable seasons in full beauty into August. Native of Europe, North America, Western Asia, and takes first rank in our British flora.

C. palustris flore-pleno.—In no respect different from the normal type, saving that the flowers are double, which to those who are partial to these forms is a great acquisition, and there can be no doubt it is very showy and effective. Britain.

C. palustris flore-pleno monstrosus.—The flowers of this form are very large, exceedingly double, and bright golden yellow in colour, quite distinct from the preceding. Britain.

C. polypetala.—A species I have not seen. It is described as a very fine showy plant, growing upwards of 18 inches high, and producing large golden-yellow flowers, which measure upwards of 2 inches in diameter. Caucasus.—W. G. T.

VICTORIA SPINACH AND EARLY NANTES CARROT.

THE demand for Spinach in most establishments renders frequent sowings through the summer months imperative in order to maintain a supply, and this from drought and in shallow soils is of a precarious character. As the ordinary Round or Summer is so prone to run to seed without forming much leaf, and this being the edible part of the plant, any addition thereto is of consequence. This we have in Victoria or Improved Round, which has leaves fully twice the size, and the plant remains fit for use quite ten days longer. It is a valuable acquisition, and is sent out by Messrs. Veitch.

EARLY NANTES CARROT.—This is a great improvement upon the Early Horn, and is a very desirable kind, coming into use quickly, being very little later than French Forcing, the roots being larger than that variety, and though somewhat stump-shaped are longer than Early Horn, the shape being good, and the colour bright red and regular; but the chief characteristic of this Carrot is the smallness of its core, which enhances its excellent quality, and the flavour is mild. It is the best of early Carrots.—G. A.

THOUGHTS ON CURRENT TOPICS.

I DON'T think I should have either troubled myself or the readers of the Journal this week with any mental cogitations, but for the feeling that had I kept my "thoughts to myself" "Non-Believer" might consider me discourteous and himself neglected.

I AM emphatically a man of peace; he, seemingly, a man of war. He enjoys a tilt with the pen, evidently, and if he does not pride himself on his 'euteness my "thoughts are inaccurate." His style I rather like, the more so as it is not borrowed, but a hybrid of his own raising—a cross, it may be timidly suggested, between Carlyleism and Thackerayism—not quite rugged enough for one, nor delicately pungent enough of the other; still it is lively, and that is something in this dull and prosy era of literature.

ON reading the note of "Non-Believer" on page 491—a perfectly fair note by the way, and to which I have not the slightest objection—I felt a little muddled about the "old" and "new" systems of Vine-pruning, as to when the old one expired and the new was born. There ought to be dates, I think, to such important events, solemnly recorded and jealously preserved in the archives at South Kensington, as that I think I have seen described as the "head-quarters of horticulture in this country."

THEN, again, I feel a difficulty in comprehending the point of departure between the two systems. The question seems to resolve itself into one of figures, but unfortunately they have a shifting tendency. I thought it slightly hypercritical to cavil between "8 and 9 feet" and "12 feet," as the proper length to prune Vine rods, and I think so yet. What is the exact and orthodox length of the "new" plan and the extreme limit to which the "old" is restricted? Until that is defined criticism

must degenerate into a wordy wrangle, of which, perhaps, this note is an example.

THEN as to the exact date of the origin of the "new" plan of leaving, say, 12 feet of rod. It appears I went too far back to prove its long existence by citing 20-foot-long rods thirty years ago. That is quite a "new plan" of objecting, certainly (going too far back to prove something old), newer a good deal than the "new plan" of Vine-pruning; but let that pass, and I will come nearer for an example. In 1870-71 the so-called "new plan" was followed in a range of vineries upwards of 400 feet in length, the young canes having been left from 6 feet to 12 feet long, according to their strength, at the first pruning after planting. How will that more modern date suit?

As to the late Mr. Pearson's work and opinions, nothing can be gained by discussing them, and they certainly were not fully declared in his concise little book. This I happen to know by having had the privilege of more than one personal discussion with the deceased gentleman, and I am hence able to record something of what he both thought, said, and did without gathering my material for "history" from a book.

THEN there remains the tremendous question as to the originator of the new old system. I am quite unable whom to think of with the object of according whatever credit may be due. I am quite sure it does not belong to me, for the long rods were in vogue to my positive knowledge in 1850; the grower of the Vines referred to in 1871-1872 made no claim to the discovery; "A Kitchen Gardener," I think, has not entered any claim, nor have we any evidence that "Non-Believer" has done so. I trust we are none of us so weak as to rely on a phantom for our fame, and to spend our time in tilting at windmills.

I AM much obliged to "Non-Believer" for affording me materials for a few notes, and I shall now be quite content for him to go on non-believing.

MR. LUCKHURST has honoured me with notice, and in an able elucidatory communication makes out a very good case in favour of converting espalier fruit trees into palmette verriers, and has shown how well the spaces can be occupied between the shortened trees by vertical or diagonal cordons. I am not the person to find fault with such trees, nor should I like to see some old-fashioned espaliers which I have often pruned and gathered bushels of fruit from shortened and "turned up" and Frenchified, however excellent the new method may be. Trees with branches 18 feet long, as straight as gun rods, studded with spurs and roped with fruit, are not to be lightly transformed. That is my whole contention. Leave well alone; but trees showing signs of collapse of the lower branches can no doubt be remodelled advantageously in the manner indicated.

I AM quite unable to admit the necessity of spurs a foot long on espalier Apple trees, and I think the advocacy of such may have a tendency to lead to that very evil of overcrowding which your correspondent has warned against so effectively. That the practice is safe in Mr. Luckhurst's hands I should not think of questioning, but all owners of fruit trees are not in a position to bestow on them such "watchful and intelligent" care as he does.

I OBSERVE spurs 6 inches long are referred to as "puny," and am asked how many Apples nearly 6 inches in diameter I would leave on such spurs. I would leave one, and be thankful. If more of that size can be developed on long and lanky spurs I should like to see them. I am asked by Mr. Luckhurst if I have ever seen a cordon. I have answered in the affirmative, and recognised the value of such trees. May I ask your correspondent if he thinks the wonderful Apples and Pears that have won the chief prizes of late years at Hereford and other great exhibitions have been produced on spurs a foot long? I am strongly of opinion that the spurs from which they were gathered were not half that length; and I think very loudly that trees well furnished with 6-inch spurs will bear as much fruit as can be matured of first-class size and quality, and a good deal more if all the blossoms set. Where, then, is the advantage of longer spurs?

WHILE on the subject of fruit trees, I think "H. J. H." (page 488) gives a good hint on summer pruning. This practice is often deferred too long, then carried out too severely. More than once I have seen mistakes made in shortening the growths of Pears, Apples, and Gooseberries to two or three leaves, some of them imperfect, as is often the case; and a safer and better

plan, as a rule, is to leave five or six leaves, doing the remainder of the shortening at the winter pruning. Severely shortening the growths in summer after much crowding has often been followed by the shrivelling of the few leaves that were left, when the weather has been dry and the sun hot. The trees have then decidedly not been benefited by summer pruning.

DOCTORS appear to differ on the measures to adopt to prevent the scalding of Grapes—at least on the question of temperature. "Keep the house cool," says "S." (page 485). Does he mean cool at night as well as by day? for some competent persons rather advise that the night temperature be somewhat increased, to prevent the condensation of moisture on the berries. The colder the fruit is, the greater the condensation must be; then unless very early and gradual morning ventilation is carefully practised, the evaporation from the fruit is excessive, which necessarily cools the surface and a collapse occurs. Is there not something in that theory? I am inclined to think so. The worst case of scalding I have seen was in a vinery without fire heat during a period when the nights were unusually cold and the days hot. Had there been less difference between the night and day temperatures, the probability is that the evil would have been less pronounced. Preventing a very high temperature during the day, and a very low one at night is, in my experience, advisable, with always plenty of foliage; sufficient, as your correspondent says, to "cover every inch of roof." Acting on this principle about the stoning period, I have never been troubled with scalded Grapes.

A "WRINKLE" in baffling the Onion maggot is, I think, imparted by Mr. Henry F. Moore on page 484. It is a fallacy to suppose that salt, lime, and soot dug into the ground prevent the attacks of the maggot. No such mixture that can be safely applied will kill the parent of the grubs in its chrysalis state. The maggots do not crawl out of the ground and attack the plants. The attack is from the air, the flies depositing eggs on the leaves, and the maggots resulting find their way to the ground and enter the Onion just below the surface, where the neck of the incipient bulb is blanched. They never enter the green leaves or stem; and here comes the "wrinkle," the "young Onions slightly earthed up are protected from attack." This is worth trying, but to be fairly tried the slight earthing should be done in good time. Transplanted Onions are not often seriously attacked. Is it not because the vulnerable part of the plant is inserted in the soil?

WORTH remembering, I think is Mr. Harding's remedy for the fruit form of the Cucumber disease—"increase of fire heat with less atmospheric moisture." This disease was the most prevalent during the wet and cold summers that prevailed two or three years since, and with warmer and drier seasons its virulence appears to have subsided. Several years ago there was a great outbreak of this disease, and the seasons then were inclement; when the summers were warmer it practically vanished. It is a terrible scourge, and the method of checking it above indicated is at least worth a little thought by those who may be so unfortunate as to have to combat the destructive visitant.

BURIED in the middle of a paragraph on page 483 is a brief but merited tribute to the effectiveness of Delphiniums in gardens about midsummer. "When the spikes from 6 to 7 feet high develop themselves, how grandly gay the garden is," says "D., Deal." "Grandly gay" indeed are these noble plants. I have had the pleasure of growing them largely, and the towering masses, some of them 9 feet high, and of the most charming colours, are splendidly imposing. Grow in rich deep soil, thin out the stems, secure them to stakes, mulch the soil over the roots, give liquid manure copiously, and see what good varieties of Delphiniums will do. They will astonish those who have been content to grow them on the let-alone principle, and will command admiration.

THE notes on Stapelias take me back in memory, and directed my thoughts to many good and curious old plants of forty years ago. Vineries were heated by flues in those days, and good Grapes were grown. On the flues were Cactuses and Stapelias, the former trained up the back wall of a house 50 or 60 feet long, which in the season of the plants' flowering was a blaze of beauty such as would have gladdened the eyes of Mr. Castle, who seems to have a weakness—or shall I say strongness?—for these lately neglected plants. The Stapelias were not gay, but remarkable. We garden boys always called them Toadflowers, from the fancied resemblance of their colours to the markings of toads; also perhaps because both were considered in about the same degree

repulsive. I have known persons admire toads, caress and fondle them, but I never remember anyone expressing delight at the fragrance of *Stapelias*.

"Now we have got to toads it is time to stop," I fancy I hear my readers muttering. But blame not me for this infliction. I have simply been led into it. The real authors of these thoughts are "Non-Believer" and Mr. Luckhurst; but for their allurements I should have been this week, as I shall be next, a silent—THINKER.

DISEASE OF GARDEN ANEMONES.

GARDEN Anemones are very subject in April, May, and June to the attacks of a destructive parasitic fungus, a parasite, which in this case is perennial—that is, the spawn or mycelium of the fungus is always within the plant invaded, either in the tissues of the perennial rootstock or in the growing stem and leaves. The pest, which does not die with the dead leaves, is probably familiar to every grower of Anemones, and

or chamber is (or rather should be) divided into four. This specific name is a very bad one, for the mouth of each cup, as may be seen at B, is generally lobed and torn in a very irregular manner, seldom or never presenting four parts only.

The history of the fungus of Anemones is, as far as it is known, a simple one, and can be readily followed with the use of a microscope. We will therefore first take a very small fragment of a diseased leaf, place it under a power which magnifies fifty diameters, and look at the little fungus cups and dots on the lower surface. One yellow pustule will answer for all. Under the microscope each yellow spot or pustule is seen as a deep little cup, as at B, with frayed edges. The edges, which in the mature examples turn outwards, at first covered over the open part of the cup when it was in a ball condition. As maturity is reached the ball bursts and the frayed edges turn back as illustrated. The investing cup itself is composed of a single thickness of minute cells or bladders packed side by side like the cells of a honeycomb. These constituent cells or bladders are shown in the frayed edges. The cup itself is not an empty one, but, on the contrary, is full of microscopic globular balls, like minute grains of yellow pollen; these bodies, also shown in the middle of the cup in the illustration at B, are the spores or reproductive bodies of the fungus, roughly answering to the



Fig. 116.—Anemone diseased.

during the last two years it has been unusually prevalent and virulent. Its effect on the host plant is often to promote an extraordinary but spurious appearance of luxuriance; instead of a few leaves being produced an enormous crop of healthy-looking leaves with long stems spring up from the ground, in too many instances accompanied by no flowers. Our illustration at fig. 116 shows a plant greatly reduced in this condition.

No phenomenon is better known in plants and animals than a spuriously healthy appearance preceding disease. The greenest and healthiest Potato plants are often the first to fall before the murrain, and corn-mildew and bunt often appear in their worst form in plants of apparently the greatest promise. Unusually fine and large Pears often drop from the trees full of larvæ, and in the human family a bright healthy colour is often a forerunner of consumption and death.

If a leaf is gathered from an Anemone suffering from disease, and the under surface is examined, it will be found, as at A, fig. 117, covered with a vast number of little yellow dots or cups, accompanied by an equally large number of minute black spots, the latter too small to be seen in the natural size illustration at A.

The name of the fungus is *Æcidium quadrifidum*, D.C., and we have not hitherto seen any published illustration of it. The name *Æcidium* is one form of a Greek word (it should properly be written *Ecidium*) meaning a little chamber—a very appropriate name, as we shall see further on; *quadrifidum* means that the mouth of the burst fungus cup

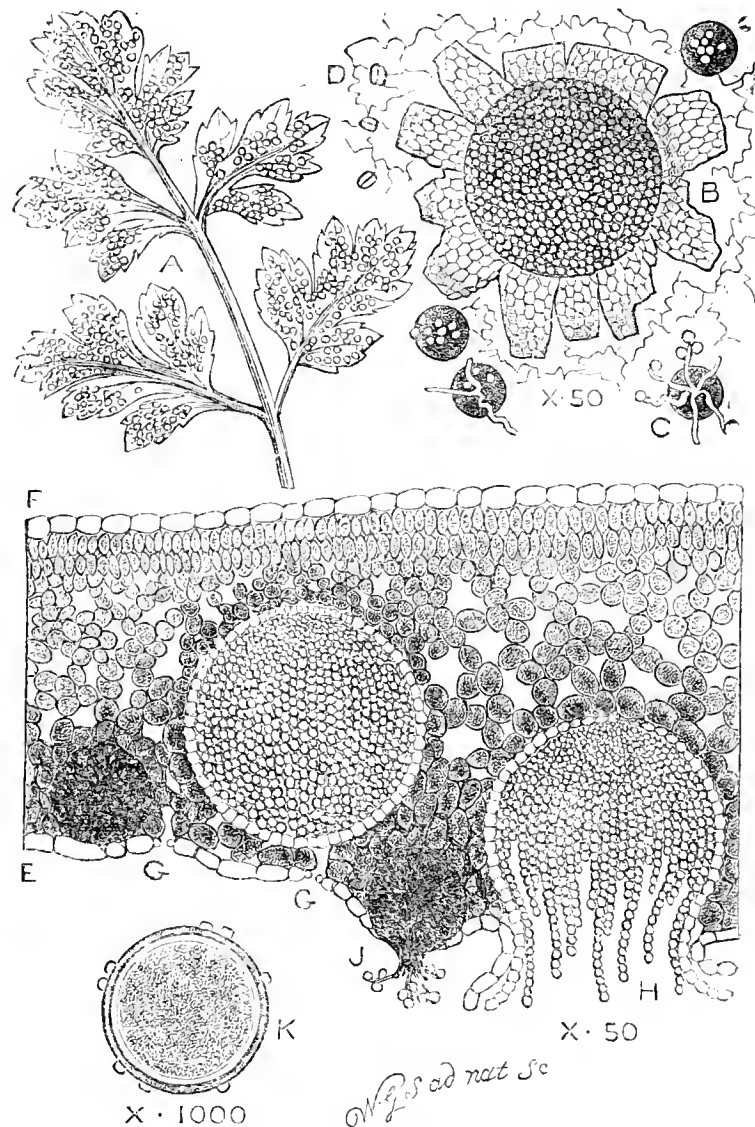


Fig. 117.—*Æcidium quadrifidum*.

seeds of flowering plants. The spores of course, like ovules, are female. Three of the black dots are also shown—one is marked at C. These are glutinous little spots, termed by botanists spermatia, or male bodies containing male fertilising atoms named spermata, roughly answering to the pollen of flowering plants. Some of the little round spores out of the *Æcidium* cup will be seen sticking on to the little black glutinous discs, or on the fine spermatic threads growing out of the discs at C.

A difference must be noted here between the habit of the fungus and a flowering plant. In the latter, as every observer knows, the pollen (male) is littered out of the anthers on to the stigma (female), but in the fungus the spores (female) are littered out of the *Æcidium* cup (female) on to the top of the spermatium (male). In the flowering plant the pollen is free and the ovules fixed, in the fungus the ovules are free and the pollen fixed. This is not given as a rule without exception, but it is a rule which holds good for the fungus we are now examining.

The fine lines seen outside the frayed edges of the *Æcidium* cup represent the lines of junction of the cells which go to form the lower cuticle of the Anemone leaf. Here and there little openings occur, as in the three shown near D. These openings are the stomata or organs of transpiration of the plant; through these little orifices the plant exhales water in the form of vapour. In dry weather the little openings keep closed, so that the plant may not perish by losing all its moisture in the form of vapour, but in damp weather the little mouths stand

elastically wide open, so that the plant may be benefited by the damp air.

It commonly happens that when fungus spores germinate on the under surface of a leaf in humid weather, that the fine spawn threads from the spores find out these mouths of transpiration, and so get inside and amongst the tissues of the leaf by the open doors. Sometimes the thread of the fungus is of such a nature that it sets up putrescence in its course of growth. This is the case with the spawn of the fungus of the Potato disease; it gets inside the leaf by the little open mouths or organs of transpiration. It then not only lives inside the leaf and sets up putridity in its progress of growth, but it sends out new spawn threads from the inside of the leaves through the mouths outwards. This process soon chokes up all the stomata and reduces the stem as well as the leaves to a putrid mass.

The stomata of the Anemone are somewhat small, and the spores of the invading fungus somewhat large, and it is supposed by some observers that the spores on germinating on the surface do not usually enter the Anemone leaf. This point is a hotly disputed one amongst botanists, but we need not enter into controversial matters here.

The *Æcidium* cups and the male organs termed spermagonia are embedded in the substance of the Anemone leaf, and it is desirable to see them both in section. For this purpose a leaf must be cut in two with a keen lancet, and the cut must be made through both *Æcidium* and spermagonium. When the leaf is divided, a slice, or rather film of inconceivable thinness, must be sliced off the cut surface and transferred to a slip of glass. If the slice is successfully made we shall see the fragment as shown in the lower illustration of fig. 117. The lower surface of the leaf is shown at E, and the upper surface at F. The epidermal cells top and bottom are colourless, not green. At G G two organs of transpiration are shown, both open and leading to the intercellular spaces between the constituent cells of the leaf. Between the two letters G G an immature *Æcidium* cup may be seen embedded in the leaf—a "little chamber"—full of spores or seeds—hence the name. Between E and G an immature dark-coloured spermagonium is seen embedded. At H a mature *Æcidium* cup is illustrated; the cup has burst through the lower cuticle of the leaf, thrown back its frayed edges right and left, and the spores are hanging in chains from the open mouth. At J a ripe spermagonium is shown also bursting through the epidermis of the leaf. Attached to its glutinous mouth and protruded spermatid threads some of the shed spores from the *Æcidium* cup may be seen. It will be observed that the leaf near H is considerably thicker than at E, F. This extra thickness, or hypertrophy of the leaf tissues, is a common after result of the attack of parasitic fungi. The reader should remark that each *Æcidium* cup is made up of an investing membrane of one series or stratum of transparent cells, and that the presence of both *Æcidium* cups and spermagonia cause the tissues of the leaf to become corroded and blackened within.

It is now only necessary to take a single spore from a cup and use the highest powers of the microscope for its magnification. If we enlarge 1000 diameters we shall see the yellow spore, as at K, full of granular protoplasm, or vital formative material, and more or less studded by the sticky male dust from the protruded and broken-up threads of the spermagonium, or male organism.

The *Æcidium* cups and the spermagonia both arise from the same spawn or mycelium within the leaf. The mycelium forms knots near the lower surface of the leaf where the constituent cells at E are looser and larger than the small and compact ones above, as at F, and where the little vertical strengthening palisade cells seen just under the transparent stratum of the upper leaf surface at F are absent. The upper surface of the leaf at F is too firm for the development and bursting of the *Æcidium* cups and spermagonia.

The *Æcidium* of Anemone is a close ally of the *Æcidium* or "blight" of Barberry bushes, a fungus which is supposed by some observers to be the cause of the red rust and black mildew of corn. The fungi of rust and mildew are termed *Uredo* and *Puccinia*, but no members of these two genera have been yet associated with the *Æcidium* of Anemones. All that is known of the fungus of Anemone blight (*Æcidium quadridum*, D.C.) is that the phenomena we have described are repeated year after year on the produce of the same rootstock from the perennial mycelium within the tissues of the perennial host plant. There is no remedy for such a disease; the only plan for the destruction of the fungus is to root up and burn all infected plants.—W. G. SMITH.

SPECIAL SOCIETIES—EXHIBITING.

MUCH has been published under this and somewhat similar headings in the *Journal of Horticulture*, yet we are not much nearer to the solution of one or two knotty questions than at the commencement of the discussion. In the course of the correspondence a few proceedings have been brought to light, that to say the least were not expected. Now the question is, Who are those who lie under the imputation of trading in a certain class of plants of which they have made a speciality, and yet take many prizes as amateurs? Why should there be any ambiguity about the term "amateur" as distinguished either from professional gardeners or growers for trade purposes? Separate classes are generally provided for each branch of the profession. Anyone managing their own gardens, only receiving occasional assistance, are termed amateurs, while gentlemen constantly employing a qualified gardener with or without further assistance have sometimes classes specially provided for them, but otherwise they must compete with professional gardeners. The nurserymen or those who grow principally for sale have their own classes,

or meet the others in those "open to all" only. This is plain enough surely, though it does not appear to be understood by all, especially those who wish to win the lion's share of prizes.

If it is not thought desirable by the framers of the schedules of the Royal Horticultural, Royal Botanic, and National Auricula and Carnation Societies to separate the amateurs from professional gardeners, then I hold that traders or those who market their surplus with their superior advantages over the ordinary amateur and professional gardeners ought not to compete against the two latter, but should meet the nurserymen or growers for sale. We hear of no infringement of this well-understood rule at either of the exhibitions of the two first-mentioned Societies; and this brings me to the most important and seasonable subject matter.

It will be observed the arrangements of the schedule of the National Carnation and Picotee Society prevent exhibitors of twelve blooms of Carnations and twelve Picotees from competing in the classes for six Carnations and Picotees respectively—a commendable proviso intended, I presume, for the encouragement of beginners. Now, I should be glad of a few plain answers to questions I propose to put in connection with these classes and Carnation showing generally. In the first place, who is Master Stanley Dodwell, Oxford, who at the 1882 Meeting was first and second respectively in these same set-apart classes, and first in both the classes last year? What is his age and occupation? We are gradually approaching the date of the next Carnation Show, hence the necessity for explanations. Perhaps replies to a few plain questions may tend to smooth matters somewhat, and decide waverers who may wish to compete, but who hesitate to do so under the circumstances.—NO AMATEUR.

[We have made inquiry into the question which has been asked by "No Amateur," and we are informed by an Oxford correspondent that Master Stanley Dodwell is the grandson of Mr. E. S. Dodwell, Joint Honorary Secretary of the National Carnation and Picotee Society, that his age is "about seven years; but it is immaterial whether his age be six, seven, or eight years, as he is a youth not advanced in years beyond the stage generally denominated the school-boy period."]

HARDY LADY'S SLIPPERS.

WE have under cultivation to-day in many instances a vast number of hardy terrestrial Orchids, all more or less beautiful and interesting, while many are really handsome, and may proudly vie with rare tropical species. The latter can only be grown by skilful hands and in heated structures, while those to which I shall draw attention may, by following these simple instructions, be grown by anyone under ordinary circumstances, and should in fact find a home in every English garden. Varied (and pretty too) as are our native species and varieties of Orchids, still they fall a long way in the rear when we consider such gems as *Calopogon pulchellus*, *Bletia hyacinthina*, *Cypripediums* generally, and *Habenarias* likewise, which come to us from other parts of the globe. Neither time nor space, however, will allow of my entering into a detailed account of the many, hence it is my intention in the present note to speak of one or two of the most distinct *Cypripediums* or Lady's Slippers.

Recalling the generic name for a moment, the writer is reminded of the vast importance attaching thereto among Orchids generally, not only in respect to hardy species, but to tropical and subtropical alike. In the two last-named instances this genus holds a prominent position, and among the hardy species it stands pre-eminent.

CYPRIPEDIUM ACAULE (Stemless Lady's Slipper).—Why a plant having a stem from 6 to 8 inches high should receive the specific signification of stemless I am at a loss to understand, since that is about the average height of many species from warmer regions. This, however, is of only minor importance when we come to consider its real qualities. It is at once one of the handsomest and hardiest of its genus, and readily distinguished from all other species by the deep fissure in the labellum. When well established the plant attains a height of 6 or 8 inches, the flowers being of purplish rose colour, nearly 2 inches in length. Its culture is simple. It may be planted in a sheltered nook on the rockery—that is, on the lower and damper portions, or fronting a *Rhododendron* bed, or in company with dwarfed American plants of a peat-loving nature. It may also be grown successfully in leaf soil and sand, and as a further proof of its willingness to submit to a variety of soils, it may be well grown in very sandy loam. As a pot plant it is charming, and with the protection of a cold frame or handlight its flowering period may be considerably lengthened. It comes from North America, where it is to be found in plenty, and as with a great majority of collected plants varies considerably in the colouring of the flowers. A well-drained position is at all times indispensable to its well-being.

C. CALCEOLUS (English Lady's Slipper).—In this we have a true Britisher, equalling, and indeed surpassing, many a tropical species. In general excellence, at the same time, it is by far the largest and handsomest of our native Orchids. When well estab-

lished it will attain a height of from 12 to 20 inches, and supporting one to three of its handsome flowers. The predominant colour of the lip is clear yellow, while that of the sepals and petals is of a brownish purple. It prefers under cultivation an aspect similar to that under which it is usually found in a wild state—viz., an eastern one, and should be planted in deep rich loam of a fibrous nature in perfectly drained positions. If a rockery is available, choose a fissure somewhat shaded, and mingle in planting some nuggets of calcareous limestone. The plant is found abundantly throughout continental Europe, and may readily be obtained from hardy plant nurseries. It is, in short, one of those charming hardy garden gems which can be cheaply bought. Thus there is nothing to prevent its admission into all gardens.

C. SPECTABILE (the Noble Lady's Slipper).—This species may fairly claim precedence over all others. While not forgetting such choice kinds as *C. macranthum* and others, I give the palm to *C. spectabile*, since it lends itself so readily to forcing in pots for indoor decoration, and at the same time is so hardy. In its native home it inhabits meadows and peaty bogs, and is readily distinguished from all other members of this family by its bold slipper-like and much-inflated labellum, which varies in colour from delicate rose to rich rosy purple, the sepals and petals being white. When thoroughly established it attains a height of 20 inches, well furnished with broad handsome leaves, terminating with one or more of its lovely flowers. Two-flowered scapes of this plant are frequently occurring, which is in itself a guarantee of great strength, together with its cultural conditions favouring its well-being. The best soil in which to grow this is a deep bed of rich spongy peat kept continually moist, though well-drained, since all the species are most impatient of stagnation. A somewhat shaded position will suit it well, and a liberal dressing annually of decomposed vegetable matter will materially assist in strengthening the plants. This species has of late years been sent over from its North American habitat in great numbers, and no difficulty should be experienced in obtaining strong and fresh roots. This is of great importance, for if the roots are withered and dry, then the chances favour its complete failure; nay, more, its ultimate death. The three species above named are the most distinct of the genus, and the easiest to manage, all flowering during June and July, allowing, of course, a slight margin either way for our variable seasons.—J. H. E.

HORN DUST.

I DO not recollect mention ever having been made in any of the horticultural papers of horn dust as a fertilising agent. Reference is frequently made to those preparations that we are accustomed to call artificial manures, and many of the special fertilisers now before the public are of undoubted value and benefit in growing plants and garden crops generally. Has horn dust fallen into disuse, or is its fertilising value only local? From my earliest recollections of gardening operations it has been in use for almost all kinds of crops. In the neighbourhood of Sheffield it is regularly used by farmers, gardeners, and nurserymen, who no doubt benefit by its application, or they would not continue to use it. On a small scale I have used it for vegetables and flowering plants, and they are always improved by its judicious application.

It is best dug into the ground in autumn and winter, or providing the season is wet, in early spring; it is of too dry a nature to be applied during the hotter portions of the year. Strong loam for potting purposes is improved if it is sprinkled on the turves when stacking them up, time being allowed for its decay. It makes a good dressing for Gooseberry and Currant bushes, spread on the soil in autumn and forked in a few inches deep.

I should like to know the experience and opinion of both professional and amateur gardeners who have used it as a manure. If the Editor would kindly insert any report on this subject, the information thus obtained would be instructive to the readers of the Journal.—J. H. S.

ROSE A. K. WILLIAMS.—You are likely to have numerous communications disproving the inference of "Y. B. A. Z.," page 467, as to the supposed "weak constitution" and want of "stamina" in this glorious Rose, so I will only ask space for a few lines from the Emerald Isle, as a devout worshipper of this empress among so many Rose queens. Your correspondent gives us no hint as to the soil, situation, treatment, or even the locality from which he writes, all of which might be of importance in coming to a conclusion. In fact, there is nothing so variable as the success even neighbours have with the same Rose. I am quite prepared any day to lift my hat to Marie Baumann, but last year she did

not give me the chance; but I afterwards found it was not so much her fault, and this year 'tis different. What would your correspondent think of preparing richly a border by a southern wall for the above twin favourite? I will guarantee, except very different from me, vigorous growth and plenty of blooms.—W. J. MURPHY, *Clonmel*.

THE CUCUMBER DISEASE.

ALLOW me to point out that the details of washing, disinfecting, &c., described by Mr. Harding on page 481, may possibly have had nothing to do with getting rid of the Cucumber disease, because similar plans have been tried repeatedly and have invariably failed. The disease in his case, and all others where it has been conquered, has been stamped out by leaving nothing for it to exist on. Any of your readers troubled with this pest, who will banish all Cucurbits from their premises for four months, as he did, and start again with a healthy stock, will without doubt get rid of the disease, and that is decidedly the best and cheapest way of doing it. This applies only to the gumming disease, of the root disease I have had no experience.—WM. TAYLOR.

A NEW INSECTICIDE—LEMON OIL.

"STILL they come!" may be the ejaculation of someone on reading this heading. Insecticides will soon be as prolific in novelties as garden lists are in new Peas. What do we want a new insecticide for? "Well, have we not Fir tree oil, an excellent preparation, and cannot we use paraffin mixed with an alkali like soap, and also fall back on hot water softened with soap as a cheap and generally efficient means of cleaning plants from dirt accumulation and insect pests?" Still I imagine we have room for another good preparation, and that I imagine will be found in one that was kindly sent to me to try two months ago by Mr. R. Campbell, Oakmore Hall, Northwich. Mr. Campbell has named his mixture "Lemon oil," and we must give him credit for an acquaintance with the constituent parts of his own insecticide; but I should be inclined to believe that the "lemon" bears much the same relation to the killing ingredient therein contained that the too seductive jam does to the medicine, in which the latter is presented to youthful dyspeptics. Lemon oil certainly smells of Lemon, but there the likeness ends.

I have been experimenting with it for two months, the last experiment being to put to rout a horde of ants which too hastily assumed that a crop of Peaches had been furnished for their own particular delectation. I must confess to have been repeatedly beaten by these wise and indefatigable insects, who, no doubt, have increased in wisdom and the world's ways since the days when King Solomon lifted them out of obscurity. I am certain, however, that none of them, not even their greatest living philosophers, know anything about Lemon oil. The main branches of the trees were merely rubbed with a solution of the oil, and the ants have one and all retired; whether to debate on what this wonderful substance can be, and to form some means of overcoming their dislike to it, or whether they have taking a "scunner" at Peaches, I cannot certainly say, but I think hardly for the latter reason. Before the episode with ants the complete efficacy of the Lemon oil as a destroyer of bug, scale, green fly, &c., and as a means of cleaning plants had been established. I can only hope that Mr. Campbell will see his way to put such a desirable insecticide in the hands of the public.—R. P. BROTHERSTON.

FANCY PANSIES.

I HEREWITH enclose a gathering of Fancy Pansies, and wish I could induce you to say a word or two in their favour. The blooms enclosed are a fair sample of the flowers obtained from a packet of seed procured last July from Messrs. Paul of Paisley, which was sown as soon as obtained, and the seedlings transplanted in the beds at the end of September. For the last three months or very nearly so the plants have been a mass of bloom. Many of the flowers were much larger and brighter in colour than those sent which, owing to the heat and drought we have had, are now past their best, and the plants must shortly make room for the summer bedders. I do not know of any flowers which for the same amount of cash and trouble will repay so well as these. If you think this note worth a place in our dear old Journal it may be the means of inducing others to grow these beautiful flowers, which is what I wish, for watching and comparing them has been a great pleasure to me.—W. WALLACE, *Yardley*.

[We can say a very good word in the favour of the flowers sent. We never saw finer from a packet of seed, and the plants have been admirably grown.]

HALF-HARDY BULBS.

IT is strange that these beautiful plants are so much neglected in these days. It cannot be that their beauty is not appreciated, for when well grown they are invariably admired. Is it because their culture is not understood? This seems to be the most probable reason, and even their would-be friends are not adopting the best means of rendering them more popular or their culture more satisfactory. Some time ago I read paragraphs in the gardening papers speaking in most laudatory terms of a bulb border that was to be established at Kew, and when on a visit to the Health Exhibition last Thursday I found time to run down chiefly with the object of seeing this border. My journey was, however, a disappointing one, for except a clump or two of *Gladiolus byzantinus* there was nothing

of much value or beauty, and several of the plants had a very unhappy appearance. I have tried growing many Cape bulbs out of doors, but with a small share of success, and it seems to me that such trials are merely a waste of money and labour. During the last two or three years I have given up all attempts of the kind, as I find I can grow these charming little plants to much better advantage in a cool house, and probably many persons who see the Kew border will come to the same conclusion.—R. T., *Sussex*.



At a General Meeting of the ROYAL HORTICULTURAL SOCIETY held on Tuesday last, William Haughton, Esq., Treasurer, in the chair, the following candidates were elected Fellows—viz., Mr. William Edmund Callaghan, Mrs. Callaghan, Mr. Thomas Mansel Franklin, Mrs. Jennings, and Mr. Harry Loveday Pike.

— PRESENTATION TO MR. B. S. WILLIAMS.—At the recent Show of the South Essex Horticultural Society Mr. B. S. Williams of Upper Holloway was presented with a pair of silver candlesticks and inkstand as a recognition of the assistance he has rendered the Society by exhibiting collections of plants, judging, &c.

— A CORRESPONDENT writes that "The ninth annual trip of the EMPLOYEES OF MESSRS. R. SMITH & Co., St. John's Nurseries, Worcester, was celebrated on the 17th, when 460, including wives and friends, left Shrub Hill Station at 4 A.M. by special train for Portsmouth, arriving there about 8.30 A.M. After the inner man had been satisfied the excursionists dispersed in different parties to visit the various places of interest—viz., Nelson's ship, the 'Victory,' the training ships 'St. Vincent' and 'Duke of Wellington,' and the dockyard. After the above-mentioned sights had been seen, the parties made their way for Southsea pier, where a special steamer, the 'Heatherbell,' was chartered to convey them round the Solent, starting from the pier at 2 P.M., passing the forts, Ryde, Osborne House, Norris Castle, and Cowes, returning by the Hampshire coast and arriving at Southsea pier at 4.30 P.M., the remainder of the day being spent in Portsmouth. After a very enjoyable day the excursionists left Portsmouth at 7.30 P.M. and arrived in Worcester at midnight. Great credit is due to the railway officials for their courtesy; and the working committee, Messrs. Aylett Cox, and Harber, the respected foremen of the firm, deserve the warmest congratulation of all concerned for the pains taken by them to render the holiday a success, and one not readily to be forgotten."

— MR. MCINTOSH'S fine collection of RHODODENDRONS has been a source of great attraction of late, and the garden at Dunevan has been admired by many visitors. The beauty of the shrubs is over now, but one or two late varieties are worthy of notice, because they are both late and beautiful. Very fine after most others have faded is Lady Annette de Trafford, a rosy-lavender, with a distinct and bold blotch, very effective and floriferous. Concessum, a warm rose, with fine flowers and symmetrical trusses, is also quite fresh and charming; while Maculatum superbum and Marchioness of Lansdowne are producing their attractive flowers freely. Rather late, but perhaps not quite so late as those named, Apology is one of the most conspicuous and beautiful, and should have a place in all collections.

— THE LILIUMS, which are such a fine feature of the same garden in summer, are very promising, many clumps rising vigorously, and from 6 to 8 feet high, amongst the Rhododendrons, particularly strong, perhaps, being *L. auratum platypetalum*. In a round bed several plants of *L. giganteum* are flowering, and their noble spikes and immense cordate leaves are highly imposing. These plants have had the protection of parasols, which have been most effectual, as without some such aid the flowers could not have been in the condition they are now, as is evident by the frost-bitten leaves towards the base of the plants, and which were not so well sheltered by the protectors. In the Lily house *L. martagon album* is lovely, *L. Szovitzianum* charming, *L. Hansonii* attractive by its waxy bells, and a seedling from *L. Washingtonianum* striking by the richness of its spots.

— IN the grounds the CONIFERS are worthy of especial note.

They are not numerous, but a few of them are perhaps unequalled in Britain. The magnificent specimen of *Cupressus Lawsoniana erecta viridis*, it may be safely said, is the finest example of this distinct and beautiful Conifer in this country, approaching, as it does, 30 feet high, and admirably furnished. Near it, and still taller and equally symmetrical, is *Picea magnifica*, beautiful in its silvery sheen. *Abies Albertiana* cannot be overlooked. There are persons who consider this splendid Fir identical with *A. canadensis*, but the delusion will be at once dispelled by an inspection of the grand specimen in question, about 70 feet high, which is altogether more massive and handsome than the slender and graceful Hemlock Spruce. That Mr. McIntosh's protracted illness is regretted by all who know him goes without saying; still it is gratifying to be able to state that he can occasionally at least walk round and enjoy his much-cherished garden. His able gardener, Mr. Taylor, will be obliged by being informed of the best remedy for mildew on Grapes. He has tried many so-called specifics, but found them wanting; and although not many men are more competent "all round," he is not above learning what others may be able to teach on this subject.

— THE HASTINGS, ST. LEONARDS, AND EAST SUSSEX FLOWER SHOW will be held in the Alexandra Park, Hastings, on Wednesday, August 20th. Prizes are offered in 135 classes for plants, flowers, fruit, and vegetables, and in the leading classes the prizes are fairly liberal.

— *SILENE MARITIMA FLORE-PLENO* is a pretty border or rockery plant, but is best suited for the latter position, as, its growth being of a trailing habit, it droops over and pleasingly clothes any bare ledges or projecting rocks. The flowers are large, full, pure white, and altogether extremely attractive, especially as they are numerous and lasting.

— ON several occasions Mr. W. H. Stacey of Dunmow, Essex, has shown blooms of remarkably pretty VERBENAS, but those he recently had at Kensington were especially fine, and comprised several excellent varieties. Lord Brooke, which was honoured with a certificate, is most effective, of a brilliant scarlet colour, with a white centre, which contrasts strikingly with the body colour. Other notable varieties were Cantab, mauve, Marginata, pink, both with white centres; Harlequin, striped with crimson and mauve; Clown, striped with purple, and Orion, of a fine carmine hue, very bold flower, and large truss. Mr. Stacey has given much attention to the improvement of the Verbena, and it well deserves his care if he can produce such beautiful varieties as these.

— THE QUEEN OF SAXIFRAGAS, *S. LONGIFOLIA*, has been well named. It is one of the most magnificent of the crusted section, closely related to the pretty pyramidal Saxifraga Cotyledon, and still closer to the longifolia of the Alps, generally known in gardens as *S. Hoslii* or *S. elatior*, from which, however, it differs in having much narrower and more numerous leaves. They are arranged in large regular rosettes 6 to 8 inches in diameter. In crevices of overhanging stones they are quite at home, establishing themselves with very little difficulty, growing and flowering with surprising freeness. The flowers are white; they are very pretty on the robust spike. It is propagated easily from seed, which it ripens freely. Native of the Pyrenees, and flowers June and July.

— FEW plants are to be compared to the Carpet Chamomile, *PYRETHRUM TCHIHATCHEWII*, for forming dense carpets in almost any position. As it grows as freely under trees as it does in the open, and seems to be quite indifferent to moist or dry situations, it might be used with advantage for covering bare unsightly places requiring a dwarf vegetation, as it is not without considerable beauty during the summer months, studded with its white-rayed Chamomile-like flowers nearly a foot high; they are useful for cutting, as they last a considerable time in water. It strikes easily from cuttings. A good companion to the above is the *Matricaria caucasica*, known also as *Pyrethrum caucasicum*; it grows a trifle taller, and the leaves are not so finely cut.—M. S.

— THE DARLINGTON ROSE SOCIETY will hold their Exhibition this year in grounds of Southend Park on Wednesday, July 16th, when about £135 will be offered as prizes in nineteen classes, in addition to the two silver medals presented by the National Rose Society for the best amateur's and best nurseryman's stand of blooms. The two most important classes for sixty blooms (nurserymen), the prizes being £8, £6, £4, and £2; and for thirty-six blooms (amateurs), the prizes for which

are £8, £5, and £3. It is a most liberal schedule, and will undoubtedly be well attended by exhibitors.

— THE FORESTS OF EUROPE are estimated to cover 500,000,000 of acres, or nearly 20 per cent. of the surface of the Continent. In British North America there are said to be 900,000,000 of acres of forest in the United States 560,000,000, in South America 700,000,000. The total thus estimated for Europe and America alone is equal to 3,600,000 geographical miles, each containing 736 English acres.

— IT is said that over 500,000 ROSE TREES are annually imported into America from England, France, and Holland.

— A FLOWER POT has been patented in Illinois which is described as so constructed that a quantity of water will be retained in the lower part of the pot, and at the same time air will have access to and circulate around the roots of the plant, thereby promoting rapid growth.

— THAT IRISES rank amongst the best of town flowers is evident by the grand display of them at Alpha House, Regent's Park. For some time the German varieties have been magnificent, now the Spanish varieties are dazzling by the richness of their colours, and these in turn will be followed by the "English," which are just commencing flowering. About five thousand bulbs have been planted, and of other hardy bulbs about thirty thousand. After thus furnishing the garden and adding herbaceous plants from English and continental nurseries, Alpha House, with its beautiful lawn and grand Weeping Ash, the pride of the garden, is, we believe, "in the market;" it will be well if the next proprietor has the same love of flowers as has Captain Patton.

— GARDENING APPOINTMENT.—Mr. Samuel Taylor, late gardener to the late Sir Henry W. Ripley, Bart., Acacia, Rawdon, near Leeds, has been appointed gardener to James Lund, Esq., Malsis Hall, Crosshills, Leeds.

— AT the ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY'S COMMEMORATION SHOW, held at Oxford on June 17th, no less than thirty-six first and other prizes were awarded to the produce of seeds supplied by Messrs. Webb & Sons, the Queen's Seedsmen, Wordsley, Stourbridge.

— ERRATUM.—I would ask permission to correct a clerical error in the beginning of the last paragraph of my "Notes from Bournemouth," which should read "Would be incomplete without a reference being made to Mr. E. White's floral establishment in the Holderness Road," and "the summer and winter garden between the Priory and Cranbourne Roads." The latter belongs to a "company," and is situated at least a mile from Mr. White's place. And "John Lellom, Esq.," should read "John Sellom, Esq."—H. W. WARD.

NOTES ON ORCHIDS.

CATTLEYAS FROM SOUTHPORT.—R. P. Percival, Esq., Cleveland, Southport, has sent us a box of magnificent Cattleya blooms, representing a large number of distinct and handsome varieties of *C. Mossiæ*, *C. Mendeli*, *C. gigas*, and *C. Sanderiana*, the last-named being superb. Cattleyas are grandly grown at Cleveland. The plants are of wonderful strength, and flower proportionately freely, the blooms attaining great size and richness of colour. The varieties of *C. Mossiæ* differ considerably in the colour, especially in the veining of the lip, some being of the brightest gold, and others much lighter. The sepals and petals, too, are in some pale blush, and in others of a deep crimson-rose. *C. Mendeli* is less varied, but the colouring of the lip also differs, and a few are nearly pure white. *C. Sanderiana* is most handsome, one fine spike having six grand flowers with the lips of unusual size and the richest crimson. Mr. Percival has carefully studied the requirements of his plants, and, assisted by his gardener, Mr. Beddoes, he has succeeded in producing some of the best grown and most healthy Cattleyas in the country, which during their season of flowering constitute an Orchid exhibition of unexcelled beauty.

ORCHIDS AT REGENT'S PARK.—The Orchids at the Royal Botanic Society's Exhibition last week included many specimens of more than ordinary merit, which could not be fully referred to in our report. The collection from Mr. Salter, gardener to J. Southgate, Esq., Selborne, Streatham, was in every way deserving of the honour it received, for the plants were admirable examples of good culture, and represented some fine varieties. *Oncidium macranthum* magnificentum, which was certificated, is a handsome variety, with flowers of great size, the sepals beautifully margined with yellow, most

effective, and one of the best varieties that has yet been obtained. *Dendrobium Bensoniæ* was well shown by several competitors; but Mr. Salter's specimen, a fine bush-like plant about 2 feet in diameter, was especially handsome, and showed the beauty of this free-flowering and pretty species to the best advantage. *Cattleya Mossiæ* Southgatei, a magnificent variety, with large richly coloured flowers, was in first-rate condition, as also was *Dendrobium suavisimum*, 3 feet through, and loaded with golden spikes. Mr. Salter has repeatedly given good indications of his cultural skill, but on this occasion he surpassed his previous efforts. Prominent in Mr. Cobb's collection were *Lælia purpurata* with four fine spikes, and *Odontoglossum vexillarium* in vigorous health, bearing ten spikes of good-coloured flowers. Mr. Child, The Gardens, Garbrand Hall, had an extremely well-grown *Aerides Lobbi* with two panicles, one having four long branches, and the other with three, and one long unbranched spike. This was a particularly fine plant, and with *Cypripedium Stonei* major, which had eighteen large flowers, and *Aerides Fieldingi floribunda*, were the principal specimens in that class.

The nurserymen's Orchids were not quite up to the usual standard. Mr. James had several showy specimens, including *Cattleya Mossiæ* well flowered, *Odontoglossum Pescatorei* with an unusually large panicle of flowers, and the distinct *Odontoglossum caudatum aureum*. Mr. Cypher's most notable plant was *Brassavola Digbyana*, with several of its large white flowers and deeply fringed lips. Sir Trevor Lawrence's unique collection of *Masdevallias* attracted much attention, as it comprised several rare and interesting species, such as *M. bella*, *M. Backhouseana*, with about two dozen flowers; *M. platyglossa*, *M. Wagneri*, *M. tridactylites*, and *M. rosea*. *M. Harryana* was represented by several good varieties.

PRUNING DENDROBIUMS.—I have seen many communications upon this subject, but my experience is quite opposite to those who advocate the removal of the old pseudo-bulbs. In several cases which I have carefully tested, the growths resulting after the pruning have been much smaller than the preceding, and this has led me to the conclusion that some advantage is derived from the old stems. If this is not so why do they remain plump for so long after they become, as the pruning advocates maintain, useless?—W.

MAXILLARIA HARRISONI.—This old inhabitant of our gardens is not half so much grown as it deserves to be, for it is very rarely met with, especially in those establishments where Orchids form the chief feature. The flowers are indeed beautiful and highly fragrant, a recommendation alone which should command for it a place. It does well in a cool house all the year round, and under cool treatment flowers profusely at this season. It is, however, rather benefited than otherwise by being placed in an intermediate temperature while making its growth, as it is made quicker in heat than under cool treatment; and this is an advantage, because the pseudo-bulbs can be better and more completely ripened earlier in the season, thus allowing of a longer and more complete season of rest. This is important, for before the plant can be termed free-flowering it must enjoy a lengthened and complete rest, which will cause it to flower as freely as any Orchid. This *Maxillaria* is one of those plants which if kept in heat the whole year commences growth almost directly one set of pseudo-bulbs has been made, and when subject to this treatment the foliage soon presents a sickly appearance, and the plants seldom flower.

This is a very accommodating Orchid, and can be grown successfully in either a pot or a basket, the former being preferable. The *Odontoglossum* or cool house is not the best position to which to rest it, for the atmosphere is too moist. When growth is completed it will rest well in a vinery or any cool house where the atmosphere is moderately dry. While at rest no more water should be given at the roots than is really necessary to keep the pseudo-bulbs and foliage from shrivelling. While growing liberal supplies of water are beneficial. This plant grows well in peat fibre and lumps of charcoal, with the surface covered with living sphagnum moss.

ODONTOGLOSSUM VEXILLARIUM.—Judging this Orchid from a gardener's point of view it is perhaps the best of all *Odontoglossums*; the beautiful varieties of *O. Alexandræ* might perhaps be excepted. It would indeed be very difficult to name any Orchid more floriferous, for the smallest little plant will produce large flowers if allowed to do so. It is, however, a mistake to allow them to flower in too small a state, for the progress of the plants is much impeded by early flowering. Healthy specimens in 5 and 6-inch pots often produce during the spring and early summer months as many as four and five spikes each, bearing the same number of large flowers on each spike. A plant of this description well bloomed is in itself a picture, but a few dozen plants arranged amongst *Masdevallias* and other varieties of Orchids in a little house are delightful.

The demand now amongst enthusiasts is for dark forms of this lovely flower, and doubtless they are the most beautiful, but they are

the most costly; but for cutting or decoration of any description the light forms are equally good, and can be obtained for considerably less money. It is a very useful Orchid, because the flowers last for a long time in a cut state in water. The plants may also with safety be used for room-decoration when in flower, providing positions are selected for them where gas is not employed. They may also be used with advantage in the conservatory or any other structure kept gay with flowering plants, if shaded from strong sun and protected from cold draughts. When used in these structures they should not be crowded amongst other flowering plants, but be associated with *Adiantum cuneatum* or any other similar Fern, and the effect is all that can be desired. Those in search of useful flowering plants could not do better than obtain a number of small plants of this lovely Orchid.—B.

NAMING ORCHIDS.—It is very undesirable that the popular style of naming plants should be employed for Orchids, and I think that the Floral Committee ought to express some opinion upon this point when plants are exhibited with such names as *Souvenir de Prince Leopold*. If this practice is followed up we shall soon have as many "Souvenirs" as there are amongst the Roses. Again, there is much unnecessary multiplication of varietal names, and this is especially the case with *Masdevallias*. The smallest character is seized upon by the "namers," and a new variety is published, often misleading purchasers, who expect to find something really distinct, and perhaps have to search over the leafstalk to find a small protuberance, or carefully watch the flowers to perceive a delicate shade of colouring not previously observed. It is with these, as it was with a distinguished florist who had named a variety of *Narcissus*, and sent it to a friend, who was unable to distinguish it from one already known, and informed the sender of the fact. The reply was, That when the friend had had as many years' experience as the raiser he would have no difficulty in detecting the difference. It may be, however, reasonably suggested that if so much training is needed to appreciate small differences they are not worth naming, and the same applies to Orchids.—J. E. R.

SILVER CUPS FOR ORCHIDS.—It has been suggested to the Committee of the York Floral Fête that they should offer a silver cup for Orchids at their next exhibition, and other societies might also take the hint. We have cups for *Chrysanthemums* in abundance, and also for Roses, and why not for Orchids? It would undoubtedly add greatly to the interest of an exhibition, and would also induce a keener competition. A champion cup might be offered somewhat on the same lines as that at the Kingston *Chrysanthemum* Show, to become the property of the gentleman if won two or three times, a money prize to be given to the gardener.

MULCHING AND TOP-DRESSING.

At page 459 Mr. Iggulden contributes an extremely useful article on the advantages of top-dressing, and especially during such a season as the present. It is needful to give all the assistance possible. While I agree with Mr. Iggulden that almost any loose material may be employed with benefit, I have noticed that spent bark from the tanneries is not included in the list; whether it be from objection or that the writer has not considered it within reach generally, Mr. Iggulden, I feel sure, will not object to explain. My reason for asking this much of our practical friend is that very near to the gardens here spent bark is plentiful, can be obtained free of cost, and has for some years been freely used in various ways for mulching purposes for Strawberry crops, but most largely for shrubberies. The growth and colour of the foliage has greatly improved with its use, and also has a very neat appearance, is quite free from weeds, affords a very agreeable change, and in no case can we trace any injury from its use. Notwithstanding all this there are two sides to most cases, and I shall be glad to have Mr. Iggulden's opinion on the subject, or that of any other practical gardener who has tried it, which may be equally of benefit to others besides myself.—E. BURTON, *Kirkby Lonsdale*.

MELONS CANKERED—ALUM.

YOUR correspondent "G. S." may with confidence apply powdered alum to his Melons. Some one, two, or three years ago (I do not remember if it was Mr. Waiting) recommended powdered alum and flowers of sulphur in equal portions, to be applied to the affected parts. Since then I have used it, and found nothing better. But it is like everything else, it must be done in time, before the canker has too much hold of the stem. It is also an excellent plan to put a little of this on the cuts when thinning the young growths.—R. I.

ALEYRODES VAPORARIORUM.—I noticed a week or two ago a correspondent asking for a cure for the above-named insect pest. I give the following, which I have known to prove successful:—Fumigate the house with tobacco for two or three nights consecutively, and when the house is filled with smoke go round and shake the infested plants. This will

bring them out into the smoke, which will then have better effect upon them. It will also be found advantageous to have the floor well moistened.—JUSTITIA.

KING OF THE EARLIES STRAWBERRY.

A FORTNIGHT ago Mr. Gilbert of Burghley sent us the following note on this Strawberry:—

"LAXTON'S KING OF THE EARLIES STRAWBERRY.—I have a few fruits of this exquisite Pine-like flavoured Strawberry now (June 10th) ripe to-day. J. C. Hopwood, Esq., called in, and I asked him to taste it; he pronounced it excellent, also Mr. Hubbard, gardener, Holywell Hall, who described it thus: 'A very great novelty, ten days before any other, and much larger than Black Prince, with a Pine-like flavour quite its own.' With these remarks I fully agree."—R. GILBERT.

As was stated last year, when we gave a figure of The Captain Strawberry, King of the Earlies was raised from *Vicomtesse Hericart de Thury* × *Black Prince*, a prolific sort, which comes earlier than either of its parents, and quite as early as *May Queen*; but otherwise almost intermediate in character between those well-known and esteemed early market Strawberries. The fruit is of medium size, ovate even and angular; skin bright red on the shaded side, and dark mahogany on the side exposed to the sun; flesh white, with a tinge of red under the skin, solid, firm, and with a fine brisk and rich flavour.

Mr. Laxton has sent us a plant with fruits of this variety, which is represented in the woodcut (fig. 118), and it need scarcely be added after what is stated by Mr. Gilbert, that a Strawberry possessing such characters as extreme earliness combined with an excellent flavour is most valuable.

YORK FLORAL FETE.

JUNE 18TH, 19TH, AND 20TH.

THE twenty-sixth annual floral festival and gala was held on Wednesday Thursday, and Friday last week in the Bootham Fields, York, and in every respect well maintained the fame this northern Exhibition has gained in the horticultural world. Six huge tents radiated from a large central circular one—the same arrangement as that employed for several preceding years, and each one was an exhibition alone. The method of grouping exhibits of similar character together, such as the Ferns, Roses, *Pelargoniums*, fine-foliage plants, &c., does not admit of a very elaborate style of arrangement; but unless the ground were specially prepared this would be impossible, and in any case with so extensive a show it would be difficult to produce a general effect. As it is, the comparative merits of the exhibits are better seen, and the instructional value of the show is greater.

The progress of the York Exhibition has been gradual but steady, and the advance has been proportionate to the increase in the prize money. At one of the earliest shows the total amount of prizes was £150, this year it is £600, besides a considerable amount expended on other attractions, which raised the total outlay to something like £1000. This is a large investment, but with fairly favourable weather the Committee are assured of success, and this proved to be the case, for the numbers of visitors were even greater than usual. Exhibitors also were in strong force, and all the most important prizes were keenly competed for, the general quality of their productions being highly satisfactory.

The courteous and energetic Secretary, Mr. Wilson, deserves the greatest praise for his long and able service in connection with this Show. Since the establishment of the Show he has worked untiringly in its behalf, and there is no doubt that its success has been in a considerable degree due to his efforts, with the hearty and substantial support of an influential Committee.

PELARGONIUMS.

At nearly every show of importance throughout the kingdom there is one or more feature which is always of unusual merit, and which is maintained year after year as the great attraction of the exhibition. At Manchester the Orchids are *par excellence*, and in a similar degree the *Pelargoniums* at York are far in advance of all other shows. This year, however, some of the exhibitors have surpassed their previous efforts, and it is difficult to conceive in what way the magnificent specimens from Mr. Eastwood, gardener to Mrs. Tetley, Weetwood, Leeds, could be excelled. They were not, perhaps, so large as some that have been shown in other seasons, but in training, health, abundance and brilliance of blooms they were as nearly perfect as can be imagined. The large tent was filled to overflowing with the exhibits in the several classes, the central stage being devoted to the Show, Fancy, and Zonal varieties, which produced a display of colours that could only be excelled by Orchids. The side stages were occupied with the bronze and tricolor varieties, which have for many years received much attention in the neighbourhood, and are never seen so well grown and numerous elsewhere. The *Pelargonium* tent was indeed an exhibition in itself, of which any society might well be proud.

The leading class was for twelve Show varieties, Mr. Eastwood taking the first place with even handsome specimens, models of good culture and training, deserving the highest commendation. They were 4 to 5 feet in diameter, bearing numerous trusses of large finely formed flowers. The varieties were *Kingston Beauty*, *Conqueror*, *Duchess of Bedford*, *Madame Hillaire*, a very distinct variety with peculiar purple-tinted flowers; *Mary Hoyle*, *Duchess of Edinburgh*, *Triomphe de St. Mandé*, *Queen Bess*, and *Albina*. Mr. C. Rylance, Ormskirk, followed with creditable plants, but looser and smaller, though flowers were of wonderful size and substance.

Particularly fine were Queen Bess, Jewess, and Brigantine. Mr. MacIntosh, gardener to J. Hingston, Esq., Clifton, York, was third, but his plants were not sufficiently forward, many of the flowers being not expanded. Mr. Eastwood was again first with six Show varieties, equally as good as those in the preceding collection. The varieties were also similar, Queen Bess, Kingston Beauty, and Mary Boyle being the finest. Mr. MacIntosh was second with plants not quite at their best; and Mr. Vear, gardener to Miss Steward, The Laurels, Bishopsthorpe, York, was third. For three plants the prizes were awarded in a similar manner, Messrs. Tetley and MacIntosh gaining the first and second prizes, followed by Mr. H. Wright, gardener to G. Talbot, Esq.,

and also with six plants. They were, like the Show varieties, even symmetrical specimens, about 4 feet in diameter, and bearing some wonderfully large trusses of handsome blooms. Conspicuous amongst the varieties were Mrs. Kelley, Expedition, Masterpiece, The Shah, the Rev. Atkinson, Renown, Lucy, Lord Derby, Mrs. Lupton Santley, and Mrs. W. Paul. Very rarely are such grand plants seen at shows, or so well deserving of admiration. Messrs. Pybus followed with twelve, but though these specimens were large the varieties were too much of one colour to make so effective a display. Messrs. Bellerby and MacIntosh secured the remaining prizes in the same class, Mr. Hemsworth, Mr. Blakeley, and Mr. Bellerby obtaining similar



Fig. 118.—STRAWBERRY KING OF THE EARLIES.

Sonthfield, Leeds, and Mr. J. Blakeley, gardener to the Rev. H. Newton, Beechwood House, Driffield.

Following up his success in the Show variety classes Mr. Eastwood was first both with six and three Fancy varieties, charmingly neat and beautifully flowered specimens, amongst which Ann Page, Marginatum, Lucy, and Roi des Fantaisies were the most striking varieties. Mr. C. Rylance also had good collections of Fancy varieties, but the remaining prizes in the two classes were awarded for much smaller and weaker examples.

The Zonals were extremely gay, profusely flowered, and representing the most brilliant shades of scarlet, with fine shades of pink, and a few pure white. The singles were by far the most effective, and with these Mr. Eastwood was also the premier exhibitor, taking first honours with twelve,

positions in the class for six. The double varieties were not so pleasing although they are more useful for cutting, and retain their flowers longer than the singles. Mr. Eastwood secured the two premier prizes for six and three specimens, thus taking the leading honours in all the classes for flowering Pelargoniums. The most effective double varieties were Madame Thibaut, Dr. Jacoby, Clara Pfizer, and Jules Simon.

Many less ornamental-foliaged plants than Tricolor Pelargoniums are grown, and it is to be regretted that the latter have in recent years become somewhat neglected. A few are employed for bedding out, but large specimens, grown for the sake of their foliage alone, are rarely seen, though they are by no means to be despised. At York, however, exhibitors are liberally encouraged, and the result invariably is a good representative show. In the

class for six varieties Mr. Hemming, gardener to A. J. Cholmley, Esq., Newton Hall, Rillington, was awarded chief honours for richly coloured plants, flat-trained, about 3 feet in diameter, and well clothed with foliage. The varieties were William Sandy, Lass o' Gowrie, Mrs. Laing, Sophia Dumaresque, Prince of Wales, and Caroline Longfield—a selection of very distinct and effective varieties. Messrs. Pybus & Son and Mr. Lazenby, gardener to the Rev. G. E. Heworth, Vicarage, York, followed very closely; Mr. C. Rylance taking the fourth place. In the class for three plants Mr. Lazenby was the most successful exhibitor, showing extremely neat and brightly coloured examples of Flambean, Mrs. J. Clutton, and Lady Cullum—three effective and pretty varieties. He was followed by several of the exhibitors named in the preceding class, all of whom staged creditable and highly coloured specimens.

Bronze-leaved varieties were shown in great numbers and excellent condition. Mr. Stephenson, gardener to J. Bellerby, Esq., Burnholme, Heworth, York, secured the leading position with six varieties, staging specimen plants of Empress Eugénie, Black Dragon, Marshal MacMahon, Rev. Mr. Pearson, with others. Mr. Barnes, gardener to Mrs. Jackson, Pocklington, followed closely, Mr. MacIntosh being very good; and Mr. Clarke, gardener to Miss Wharton, Burton Grange, York, was fourth with neat plants. Mr. Stephenson was also first with three bronze varieties, showing Black Douglas, Earl Rosslyn, and Mrs. Harrison Weir, finely coloured; Mr. Barnes taking the second place with similar plants.

STOVE AND GREENHOUSE PLANTS.

Though somewhat late in the season for a large display of stove and greenhouse plants there is always some good representative collections, especially in the principal class for a group of ten flowering and six fine-foliage plants. The latter were on this occasion, as at previous exhibitions, arranged in the central circular tent from which all the other tents radiate, and the three entered formed a handsome group of large and well-grown specimens. Mr. Letts, gardener to the Earl of Zetland, Aske Hall, Richmond, Yorkshire, was the most successful exhibitor, and unquestionably merited the honour accorded him, for his plants were with one or two exceptions in magnificent condition. Very prominent was *Anthurium Schertzerianum*, bearing sixty or seventy large finely coloured spathes, and *Anthurium Andreanum* with nine spathes, each about 8 inches long by as much in diameter, both superbly grown plants; but the most meritorious specimen in the whole collection was a *Phenocoma prolifera*, 6 feet in diameter, of globular form, profusely flowered, and in perfect health; such a plant is indeed seldom seen. *Erica depressa*, 4 feet high and flowering very freely; *Aphelaxis maerantha purpurea*, very even and good; *Allamanda grandiflora*, about the same size; and a handsome globular *Ixora coccinea*, 5 feet high, and bearing a large number of full even trusses of flowers were the best of the other flowering plants, a one-sided *Azalea Duc de Nassau* being the greatest defect in the group. Of the foliage plants a gigantic *Croton Queen Victoria* with several Cycads were the most noteworthy specimens. Mr. J. Cypher, Cheltenham, was second with healthy but smaller and less effective specimens, among which the best were *Stephanotis floribunda*, a large *Pimelea diosmæfolia*, *Cordyline indivisa*, *Azalea Reine des Roses*, and *Kentia Fosteriana*. Mr. R. Berry, gardener to W. Dove, Esq., Crown Cottage, York, was awarded the third prize for neat little plants, and an extra prize was adjudged to Mr. Noble, gardener to T. Fry, Esq., M.P., Woodburn, Darlington.

In the class for six specimens Mr. Letts was again the premier exhibitor, showing beautiful examples of *Anthurium Schertzerianum*, 6 feet in diameter, *Ixora Williamsi*, *Erica Lindleyana*, and *E. ovata*. Mr. Noble followed, his two best plants being an extremely neat *Erica ventricosa coccinea minor* and *E. Cavendishiana*. Mr. C. Rollisson, gardener to W. Bateman, Esq., The Ridge, Harrogate, was third, having amongst other good plants an exceedingly fine *Statice profusa*, 3 feet across and grandly flowered. With three specimens Mr. J. Sunley, gardener to W. N. Champion, Esq., Upper Shibden Hall, Halifax, was first, showing *Imantophyllum miniatum superbum* with twelve large trusses, and *Anthurium Schertzerianum* in fine condition. Mr. H. Wright took the second place with a particularly handsome *Gloriosa superba*, 6 feet high, amongst others, and Mr. McIntyre was third, showing *Clerodendron Balfourianum* well flowered.

Heaths were small but healthy, and bearing numerous flowers, especially those from Mr. Cypher, which gained him the first place in the class for three. Messrs. Letts and Rollisson also exhibited neat specimens.

ORCHIDS.

In proportion to the extent of the Exhibition the display of Orchids at York is usually rather weak, and it would be a great improvement if a more spirited competition could be induced, as the time at which the Show is held is a very suitable one to procure a good number of effective Orchids, especially the magnificent *Cattleyas*. With this object in view it has been suggested that the Committee offer a valuable cup for ten or twelve specimens, which would probably bring some of the large growers, and create an interest in these classes that would well compensate for the outlay. It is to be hoped that the suggestion will be adopted, and with their present season's financial success to aid them there should be no difficulty in the matter. The largest class is that for six plants, in which Mr. J. Sunley gained first honours with *Cypripedium barbatum grandiflorum*, bearing thirty-six blooms; *Lælia purpurata alba*, with six flowers; *Dendrobium nobile*, well bloomed; *Odontoglossum vexillarium*, fine; *Anguloa Clowesi*, with twelve fine blooms; and *Cattleya Mossiæ*, the last-named being really three plants in a huge basket. Mr. C. Rollisson secured the second place, staging *Epidendrum vitellinum majus* in good condition; *Vanda suavis*, with three spikes; and *Saccolabium retusum*, bearing a spike 12 inches long. Mr. Cypher was third, his most noteworthy plant being a small *Cypripedium ciliolare*. For three Orchids Mr. Cartwright took the lead with *Cypripedium caudatum*, bearing eight large and unusually dark-coloured flowers; *Odontoglossum vexillarium* with ten spikes; and *Aerides Fieldingi*, very healthy. Mr. Sunley followed, showing *Dendrobium Devonianum*, with seven well-flowered pseudo-bulbs; *D. nobile*, healthy and good; and *Cattleya Mossiæ*. The third place was adjudged to Mr. Eastwood, who had *Aerides Fieldingi*, with three fine spikes; and the fourth to Mr. Rollisson for *Cypripedium caudatum* and *Dendrobium suavisissimum*, small but fresh. The best single specimen was *Trichopilia crispa*, with eleven flowers, from Mr. John Sunley; the second *Cypripedium superbiens*, with eight flowers, from

Mr. Jas. Sunley; the third *Cymbidium Lowianum*, with three spikes of thirteen flowers each, from Mr. Rollisson, a fine plant, which was described as having been in flower since February. The fourth was *Cypripedium barbatum superbiens*, well flowered, from Mr. Hemming.

ROSES.

A beautiful tent of Roses was provided, the blooms being abundant, bright, and generally of good substance. The plants throughout were healthy, with well-developed foliage, but in several cases were deficient in neatness of training. The grand Cheshunt giants, or the smaller but beautifully symmetrical Slough specimens, would have added greatly to the attractions of the Show, and would also have afforded good models for the other exhibitors. In the open classes the leading prizes were secured by Messrs. Pybus & Son, Monkton Moor, Ripon; Messrs. Jackson & Co., Cross Lane, Bedale; and Mr. H. May, Hope Nurseries, Bedale, who nearly equally shared the honours. The first-named exhibited some fine bushes of *Marquis de Gibot*, *Juno*, and *Edouard Morren*, while in another class Mr. May had *Madame Lacharme*, *Duchesse de Morny*, and *Eugène Verdier* in capital condition. The best single specimen of a dark variety was *Madame Lacharme*, 4 feet in diameter, with abundant large substantial blooms, from Messrs. Pybus & Son; and the best dark variety *Horace Vernet*, fresh and handsome, from Messrs. Jackson & Co. The principal amateur competitors were Mr. J. Vear, Mr. John Sunley, and Mr. Eastwood, but their productions though healthy were rather deficient in the blooms.

The cut Rose blooms were strongly represented, the competition being keen in all the classes. Mr. H. May was extremely successful, winning first honours with forty-eight, thirty-six, and twenty-four blooms, each collection well deserving its position. Some of the varieties especially well represented were *Marie Baumann*, *Paul Neyron*, *Madame V. Verdier*, and *Pierre Notting*. Messrs. Jackson & Co. and Mr. Eastwood were the other prize-takers in these classes. For twelve white and yellow Roses Mr. Finlay, gardener to Mrs. Maynard, East Layton Hall, Darlington, was first with a beautiful collection of blooms, *Gloire de Dijon*, *Marie Van Houtte*, *Safrano*, and *Devoniensis* being extremely fine. Mr. Swann, gardener to J. S. Eggington, Esq., Kirk Ella Hall; with Mr. Vear, Mr. Bonsall, gardener to G. B. C. Yarborough, Esq., Campsmount, Doncaster; Mr. Eastwood, and Mr. John Sunley, secured most of the remaining prizes.

FINE-FOLIAGE PLANTS.

Though not quite so extensive as other portions of the Exhibition, the classes for these plants included many specimens of great merit. Mr. Cypher's leading collection of six comprised a handsome *Dasylium acrotrichum*, *Kentia australis*, large and healthy; *K. Fosteriana*, similarly praiseworthy, and a beautiful example of the distinct *Bonaparte juncea*. Mr. Noble, who followed, had a fine *Dasylium acrotrichum*. The best three specimens were contributed by Mr. Letts, his premier plant being a grandly coloured *Croton Johannis*, 6 feet high and 8 feet in diameter, one of the most handsome examples of this variety we have ever seen; *Cordyline indivisa* and *Dasylium acrotrichum*, 4 feet high, were also good plants. Mr. McIntyre followed with *Cycas revoluta* and *circularis*, both admirable specimens; and *Croton Johannis*, fairly coloured. Mr. C. Rollisson's third-prize plants comprised *Beaucarnea glauca* and *Phormium tenax*, large and healthy. The premier single specimen was *Dasylium acrotrichum* from Mr. McIntyre, which was 5 feet high, in perfect health.

Crotons were not very numerous, but three good collections of four plants each were shown. Mr. Letts secured the first place with most praiseworthy specimens, strongly grown and superbly coloured. *C. Morti* was especially beautiful, 5 feet in diameter, with very large golden-veined leaves; *C. majesticus* was 7 feet high by 8 feet in diameter; *C. Johannis*, 6 feet across, was very handsome in colour; and *C. volutus*, of about the same size, was also a grand specimen. Mr. McIntyre's second-prize plants were large, but rather deficient in colour, *C. Disraeli* being the best. Mr. J. Russell, gardener to J. Buckle, Esq., Markgate, York, was third with less vigorous plants. *Dracaenas* were of moderate size and well clothed with foliage to the base. The best were shown by Mr. Noble and Mr. McIntyre. *Coleuses* were brightly coloured and evenly trained, Mr. W. Lazenby having the best six specimens, very neat and beautiful examples, flatly trained, and of good carefully selected varieties. Mr. A. Simpson, Heworth Moor, followed with rather looser specimens.

The prizes offered by Mr. B. S. Williams, Upper Holloway, London, for a collection of *Nepenthes*, brought one exhibitor, Mr. McIntyre, who was adjudged the first prize for small but well-grown plants of choice varieties.

FERNS.

Quite an agreeable contrast to the brilliant colours of the *Pelargoniums* was afforded by the numerous fresh green Ferns in the adjoining tent, and the idea of so placing these exhibits was an excellent one, which will doubtless become an established regulation. The principal class was for six exotic Ferns, in which Mr. Berry, who for many years has been a successful grower and exhibitor of such plants, was awarded first honours for extremely vigorous specimens, including a *Microlepia hirta cristata*, 5 feet high, with long handsome crested fronds drooping to the ground; *Davallia Mooreana* was similarly remarkable for its fresh healthy appearance, and *Nephrolepis davallioides furcans* showed the characters of that very distinct Fern to the best advantage. Mr. C. Noble gained the second prize with *Davallia Mooreana* in grand condition, fully 7 feet in diameter, bearing large clean beautiful fronds. *Adiantum concinnum latum* and *Gymnogramma sulphurea* were well represented. Messrs. Bailey & Son were third, their best plant being *Woodwardia radicans*, large and in excellent condition. With three Ferns Mr. Berry was again the premier exhibitor, and had another grand *Microlepia* equally as large as the other. Mr. Lazenby followed, having *Dicksonia antarctica*, *Adiantum tenerum* and *farleyense* neat and fresh. Mr. Noble secured the third place, *Davallia Mooreana* being his most effective plant.

Hardy Ferns were capitally shown, as is always expected at York, for there are many amateurs and others in the district who give especial attention to them. The best ten plants were from Mr. W. R. Robinson, who exhibited a most creditable collection, comprising a wonderfully fine specimen of *Hymenophyllum Wilsoni*, *Lastrea Filix-mas grandiceps*, handsome *Polypodium elegantissimum*, *Scolopendrium crispum latum*, and *Athy-*

rium F.f. plumosum, 6 feet high. Mr. C. Rylance took the next position with good Athyriums and Lastreas, Mr. Russell being third chiefly with Athyriums. Mr. Rodwell was the leading exhibitor with six hardy Ferns, healthy plants of distinct effective varieties. Mr. J. Russell had an excellent premier collection of thirty-six British Ferns, representing some of the best varieties in cultivation.

Selaginellas were beautifully shown by Mr. Blakeley, who had much finer, more accurately named specimens than are usually seen at exhibitions. Martensi, Kraussiana variegata formosa, Poulteri, and aurea were the best varieties. Mr. Russell was second with Uncinata viticulosa and Wildenevii especially good, Mr. Berry being third.

GROUPS.

Two classes were devoted to groups of plants arranged for effect in a space of 250 and 150 square feet respectively, and the seven groups entered filled a large tent, which was certainly not the least pleasing portion of the Show. Mr. McIntyre won chief honours for the larger group, which was distinguished by its free graceful style of arrangement. The centre and body were chiefly Kentias, Cocos, Crotons, Acalyphas, and Adiantum gracilimum, with a neat margin of Panicum variegatum, Ericas, Hydrangeas, and small Ferns, with a few Oncidium spikes showing amongst the foliage. This group was an extremely pretty one, but a little more colour would have improved it. Mr. R. Simpson, Selby, was second with a good group, rather brighter than the first, but not quite so graceful. Mr. Berry was third with an effective group, perhaps a little too much of the orthodox pattern to please the Judges, and Messrs. Bailey & Son were fourth with a rather heavy arrangement. In the smaller group class the first prize was also awarded for one in which foliage plants predominated, but it was far from dull. This was arranged by Mr. Noble, every plant being well placed, the general smoothness without formality being very satisfactory. Mr. Russell was second with a slightly crowded but otherwise pretty group; Mr. R. Baker being third for a neat but too formal group, a style which is now discouraged by most judges, though it still finds favour with a few.

MISCELLANEOUS CLASSES.

Of the smaller classes not mentioned in the previous notes that for a collection of twenty alpine herbaceous plants was an interesting and well-filled one. Messrs. Bailey & Son were the most successful exhibitors, taking the first place with showy plants of Spiraea Aruncus, single and double Pyrethrums, Hemerocallis flava, Delphiniums, and others of similar character, effective useful plants, but none very choice or rare. The second position was accorded to Messrs. W. H. & J. H. Rodwell for plants resembling the others, but scarcely so vigorous or well flowered. Mr. R. Simpson was third, his best plants being some excellent Pyrethrums. Gloxinias were admirably shown, the plants in all the collections being strong, with good foliage and abundant large, well formed, and richly coloured flowers, Messrs. Russell, Sunley, Berry, Dawe, and Blakeley being the prizetakers. Calceolarias were distinguished by rather small flowers, and rather too thin, tall growth, though the colours were good. Bedding plants as usual made a good display, Messrs. T. Simpson & Son being the principal exhibitors with a good collection.

CUT FLOWERS.

A considerable space of the staging in the fruit tent was occupied with numerous exhibits in the cut-flower classes, and a keener competition or better quality flowers we have not seen at any show this year. For twelve bunches of flowers Mr. McIndoe won the leading prize with beautiful examples of Phalenopsis grandiflora, Odontoglossum vexillarium, Erica insignis, Callistemon rigidus, and Odontoglossum Roezii. Mr. Cartwright took the second place for a collection but little inferior to the preceding, beautiful examples of Phoenocoma prolifera, Aerides, Statice, Allamandas, Ixoras, and Ericas. Messrs. Letts and Black followed with good stands. Again, with six bunches, Mr. McIndoe led the way, followed closely by Messrs. Cartwright and Noble. Eight competitors entered the class for twelve bunches of hardy herbaceous perennials, Mr. McIndoe continuing his success by securing the first prize with a fine collection, including Inula grandiflora, Thalictrum aquilegifolium, double white Rocket, Pæonies, Pyrethrums, Lilium candidum, Delphinium nudicaule, and Delphinium Belladonna. Mr. G. Holmes secured the second award with Campanula dahurica, Gladiolus communis, and Geum coccineum, very fine. Mr. Short, gardener to A. Pearse, Esq., Hummersknott, Darlington; Mr. Hutchinsen, and Mr. Kirlew were all awarded prizes for good flowers. Messrs. Laird and Son, 17, South Frederick Street, Edinburgh, offered prizes for trays of twenty-four bunches of Pansies and twelve bunches of Violas. Mr. J. G. Craig was successful in the Pansy class with fine symmetrical blooms; and Messrs. Harkness & Son, Bedale, secured that award in the Viola class, extra prizes being adjudged to several exhibitors.

Bouquets were well shown, Mr. Cypher, Mr. Wright, Mr. C. Rylance, and Mr. Webster being the prizetakers for pretty combinations of Orchids and miscellaneous stove flowers. Stands of flowers were exhibited by Messrs. Lunt, R. Dickenson, and Wright, who were awarded the prize in that order for tasteful arrangements.

FRUIT.

Seventeen classes were devoted to fruits, open to all exhibitors, the prizes being extremely liberal, ranging from £8 to 10s., and, as usual, the competition was keen. The date of this Show is, however, too early for fruit to be shown in its best condition, especially by northern growers, and in consequence there was in some cases an evident deficiency in colour. On the other hand, however, there were also several exhibits of more than ordinary merit, and indicating the most satisfactory culture, some of the black Grapes and Melons deserving especial praise.

Collections.—The premier class in the fruit department of the Show is invariably that for eight distinct varieties, and on this occasion there were three competitors, each staging good produce, but perhaps not quite up to the standard of some previous shows at York. Mr. J. McIndoe, gardener to Sir Joseph Pease, Bart., M.P., Hutton Hall, Guisborough, was first with Black Hamburg Grapes, even, well coloured, and large in berry; Muscat of Alexandria, rather green; a fine Queen Pine; Best of All Melon, finely ripened; Royal George Peaches of medium size but rich colour; Pitmaston Orange Nectarines well ripened; Figs fair, and Alexandra Noblesse large.

Mr. Westcott, gardener to the Duke of Cleveland, Raby Castle, Darlington, was second, his Foster's Seedling Grapes, Best of All Melon, and Lord Napier Nectarines being the best dishes. Mr. N. Black, gardener to the Misses Pease, Southend, Darlington, was third, Dr. Hogg Peaches and Buckland Sweetwater Grapes being very good. For six varieties Mr. McIndoe was again first, a grand fruit beautifully netted of Melon Best of All being the most notable in the collection; his Black Hamburg Grapes were well coloured and large. Mr. Wallis, gardener to Sir H. M. Thompson, Bart., Kirby Hall, York, was second, showing large Black Hamburg Grapes, but very much rubbed and wanting in bloom; Grosse Mignonne Peaches in the same collection were of great size. Mr. D. Melville, gardener to Mrs. Hornsby, St. Vincent's, Grantham, was third with rather small samples. For four varieties Mr. Clayton, gardener to J. Fielden, Esq., Grimston Park, Tadcaster, won the chief position, having Violette Hâtive Nectarines and A Bec Peaches in praiseworthy condition. Mr. G. Cartwright, gardener to H. Wilson, Esq., Tranby Croft, Hull, followed with good Peaches, but rather rough Black Grapes. Mr. McIntyre, gardener to Mrs. G. Pease, Woodside, Darlington, taking the third place.

Pine Apples.—Only three Pine Apples were staged, all Queens. Mr. T. Hare, gardener to R. H. O. Neville, Esq., Grantham, leading with a well-developed and ripe fruit, followed by Mr. Black and Mr. Craig, gardener to J. Hutchinson, Esq., Eggleston Hall, Darlington, with much smaller fruits.

Grapes.—The entries were moderate in these classes. Five good lots of three bunches of Black Hamburgs were entered. Mr. James Johnson, gardener to Hugh Gill, Esq., Boston Spa, secured chief honours with even bunches of moderate size, but bearing a fine dense bloom. Mr. Alsop, gardener to Lord Hotham, South Dalton Park, Driffield, was second with a less even collection; two were, however, finely ripened. The third position was accorded to Mr. Dawes, gardener to the Hon. Mrs. Ingram, Temple Newsam, Leeds, for samples of good colour but small in berry.

White Grapes were with few exceptions much too green. Mr. J. Jefferson, gardener to F. Earnshaw, Esq., Sheffield, was first in the Muscat of Alexandria class, staging three of the best ripened bunches that have been yet exhibited this season; the second prize going to Mr. McIndoe for Muscat of Alexandria, very irregular and imperfectly ripened. Mr. Clayton was third with Muscats far too green to be cut, and certainly not fit for exhibition, though large in bunch and berry. In the Any other white variety class Mr. Dawes won premier honours with Foster's Seedling, well-ripened and good bunches. A. Wilson, Esq., followed with Buckland Sweetwater small but ripe, and Mr. Alsop was third with Foster's very green.

Peaches.—Ten dishes of creditable Peaches were entered, Mr. Puzey, gardener to W. H. St. Quintin, Esq., being first with Crimson Galande large and deeply coloured; some of the finest examples we have seen. Mr. Mitchell, gardener to Lord Wenlock, York, was second with Violette Hâtive large and handsome; A. Wilson, Esq., being third with the same variety in nearly equally as good condition.

Nectarines.—Eight dishes of Nectarines were staged, but these were not so meritorious as the Peaches, being mostly small and rather unripe. B. Hansworth, Esq., Mr. McIndoe, and A. Wilson, Esq., were the prizetakers.

Melons.—There were six competitors in the class for one scarlet-flesh Melon, Mr. McIndoe leading with Scarlet Premier large and superbly netted. Mr. J. Edmonds followed with the same variety in greatly inferior condition, and the Misses Pease were third. Mr. Dawes had the best green-flesh Melon—viz., Victory of Bath, small but thoroughly ripe. Mr. Mitchell followed with a small, peculiar, deep green Melon known as Dickson's Exquisite, and Mr. A. Wilson was third with the same variety. In the white-flesh Melon class Mr. Melville, Mr. J. Edmonds, and Mr. Mitchell were the prizetakers with good plants of unnamed varieties. Figs, Cherries, and Strawberries were not largely shown.

Cucumbers.—The competition was extremely keen in the class for a brace of Cucumbers, no less than twenty being staged, all very close in merit. Mr. McIndoe gained the first prize for Verdant Green, two neat straight fruits. Mr. Daglish, Aldborough, was second with fresh young fruits of a favourite variety of his own. Mr. C. Rylance was third with Telegraph, two good fruits.

Tomatoes.—A pretty display of Tomatoes was formed by the eight entries in a class for a dish of twelve fruits. Mr. McIndoe was first with Hackwood Park Prolific, very brightly coloured. Mr. Jefferson was second with Dedham Favourite, round, even, and beautiful in colour. Mr. Fielden followed with Hackwood Park, neat and good colour. In the opinion of many persons the second lot was preferable to the first in this class, as the Hackwood Park variety was rather too much corrugated.

VEGETABLES.

Five clean good collections of vegetables were entered, the premier position being secured by Mr. J. Hemming, gardener to H. J. Cholmley, Esq., Rillington, for a most praiseworthy contribution, including Snowball Cauliflowers, Sutton's Improved Telegraph Cucumbers, Filbert Kidney Potatoes, Canadian Wonder Beans, Hathaway's Excelsior Tomatoes, very good; The Baron Pea, Carrots, and Asparagus. Mr. McIndoe was placed second with a more tastefully arranged collection on Parsley, but there was no Asparagus or Beans, though The Paragon Peas, Onions, Carrots, Cucumbers, and Potatoes were good. Mr. H. Wilson was third with a neat collection. Mr. R. Kirk, Acomb, York, showed a fine basket of vegetables not for competition, including some particularly good Asparagus, Mushrooms, and Tomatoes.

Not-for-competition exhibits were shown in moderate numbers, but Mr. B. S. Williams, Upper Holloway, London, contributed a beautiful collection of choice Orchids and other stove plants, including many novelties of the present season's introduction. Messrs. Richard Smith & Co., Worcester, had a handsome group of Clematises of selected good varieties. Messrs. Bailey and Son showed an extensive collection of Tuberous Begonias; and Messrs. Harkness & Sons exhibited a large number of beautiful Pansy blooms.

With the exception of a little rain on Thursday evening the weather was favourable on each of the three days, and on the second the number of visitors was very large, the town being crowded with excursionists.

THE EUCALYPTUS IN IRELAND.—Writing to the *Irish Farmers' Gazette* upon this subject, Mr. C. Roberts, Mayfair, observes as

follows:—"I think the subject of the acclimatisation of the tree cannot be determined by the history of a few solitary specimens. The young trees should be planted in considerable numbers close—very close together—so as to shelter each other from the wind and cold. Some will die, but others will survive, just as they do in warmer countries like Spain and Portugal. I was in Spain this last winter and saw a considerable number of Eucalyptus trees killed by a severe frost, which I think occurred in November. Many of the trees, however, survived, and indeed the leaves did not show the slightest injury from the cold, and dead and living trees were seen standing side by side. Exactly the same thing occurred in some of the Olive plantations near Granada and Cordova. The frost had killed some, while others in exactly the same situations were little affected by it. Some Orange trees at Seville were in the same condition. It is obvious that trees of the same species have different constitutions, and it is only by experimenting that the hardy ones can be selected. The great mistake which has been committed in this country has been the planting of the Eucalyptus in too rich or too damp soils, by which mistake the tree grows too freely, and does not ripen its wood for the winter. The soil cannot be too poor or dry, especially for the young tree. It is a great error to think that the tree grows in swamps in its native country of Tasmania. Some of the finest trees I have seen grew on the bare rocky slopes of the mountains about Hobartown, and when I saw them a few years ago they were covered with snow. The nature of the roots is that they shall be able to absorb moisture where only little is to be found, and not to live in damp places."

ROYAL METEOROLOGICAL SOCIETY.

THE concluding monthly meeting of this Society for the present session was held on Wednesday evening, the 18th inst., at the Institution of Civil Engineers, Mr. R. H. Scott, F.R.S., President, in the chair. Dr. Benjamin A. Gould, Director of the Cordova Observatory, Argentine Republic, was elected an honorary member.

The following papers were read:—

1, "The Equinoctial Gales—Do they Occur in the British Isles?" By Mr. R. H. Scott, F.R.S. The period investigated was the fourteen years 1870—84, and only those storms were selected which had attained force 9 of the Beaufort scale at more than two stations. The results show that the storms are all but exclusively confined to the winter half-year; and also how, for a certain interval, the stream of storm depressions set over the British Isles, and then for a time takes another path, leaving this country at rest. In some years there are as many as four or five storms in a fortnight, and in others there are none or only one. It is further shown that there is no strongly marked maximum at either equinox.

2, On the Physical Significance of Concave and Convex Barographic or Thermographic Traces," by the Hon. R. Abercromby, F.R.Met.Soc. The author shows that a falling barogram is convex when the rate of the fall is increasing, concave when decreasing; and conversely, that a rising barogram is convex when the rate is decreasing, concave when increasing. As the rate of barometric change is proportional to the steepness of the gradients which are passing, and the wind also depends on the gradients, the author suggests the following rules for judging the coming force of a gale from the inspection of a barogram. A convex barogram is always bad with a falling thermometer, and good with a rising one, and a concave trace is sometimes a good sign with a falling barometer, and not always a bad indication with a rising one. The convexity or concavity of a thermogram is likewise shown to depend on the rate of thermal change. A method is given by which the distribution of diurnal isotherms over the globe can be deduced from the diurnal thermograms in different latitudes; and it is shown that the shape of diurnal isotherms on a Mercator chart, for a limited number of degrees of latitude, is similar to the shape of the curve of diurnal temperature range, if we turn time into longitude and temperature into latitude on a suitable scale.

3, "Maritime Losses and Casualties for 1883 Considered in Connection with the Weather," by Mr. C. Harding, F.R.Met.Soc.

4, "The Helm Wind," by the Rev. J. Brunskill, F.R.Met.Soc. This is an account of a wind peculiar to the Crossfell range; and its presence is indicated by a belt of clouds, denominated the "helm barr," which settles like a helmet over the top of the mountain.

5, Climate of the Delta of Egypt in 1798 to 1802 during the French and British Campaigns," by Surgeon-Major W. T. Black, F.R.Met.Soc. The author has collected and discussed the meteorological observations made in Egypt during the French and British campaigns at the beginning of the present century.

EXHIBITING ROSES.

SINCE I commenced taking your valuable Journal, nearly two years ago, I have derived much practical information from the columns of it, especially regarding that universal favourite the Rose. About a year ago I asked you for some information with regard to the budding of Roses, and you were kind enough at that time to publish a first-class article on the subject, accompanied by woodcuts. Pardon my again troubling you for some other information. As the exhibition season is once more at hand I would be glad if you could give me some hints as to the staging of Roses for exhibition. What is the proper method of doing so? Here in Scotland the usual way is to add a lot of foliage to the blooms, which are set into zinc tubes resting on the boxes; consequently the blooms are lying flat on the board. I understand there is a much better method of staging than this, and that is to cover the boxes with nice moss, to support the blooms with wire clips, and with nothing but the foliage as cut from the tree. I have great difficulty in getting nice moss. Is there any way of dyeing this to make it greener? How are wire clips made, or where can they be had?

Any information you can give me through the columns of your valuable paper will be acceptable by—AYRSHIRE AMATEUR.

[From Canon Hole's far-famed "Book About Roses" (Blackwood and Sons) we cite the following, that will be useful to many on the eve of the Rose season.

"At our first National Rose Show we commenced a reform in showing Roses by an act of uniformity as to size and shape of boxes. The amateur must therefore order his boxes, which any carpenter can make for him from three-quarter-inch deal, to be of the following dimensions:—

	Length.	Breadth.	Height.
For 24 Roses,	3 feet 9 inches.	1 foot 6 inches.	Back of box 7 inches, front 5.
" 18 "	2 " 9 "	" "	" "
" 12 "	2 " "	" "	" "
" 6 "	1 foot 3 inches.	" "	" "

The covers, being 8 inches in depth at the back and 6 inches in front, being $1\frac{1}{2}$ inch longer and wider than the boxes, and having a narrow beading within the four sides, half an inch from the bottom of the lid, overlap the boxes, leaving ample room for the Roses, and are secured for travelling by stout leather straps. Within the boxes some exhibitors have holes pierced at equal distances on a uniform surface of wood; but as Roses differ in size, it is more convenient to have the facility of placing them where we please, and for this purpose it is desirable to have strong laths (three-fourths of an inch in depth and $1\frac{1}{4}$ inch in width) extending the length of the box. These laths should be six in number, and should be nailed on two strong pieces of wood, crossing the box one at each end, 2 inches below the surface. The upper and lower laths should be fixed one-eighth of an inch within the box, and the four remaining so arranged that there will be six interstices $1\frac{1}{4}$ inch in width—three for the Roses and three merely to reduce the weight. There will be a space of $1\frac{1}{4}$ inch between the laths and the upper edge of the box to be filled as follows:—Cover the laths with sheets of brown paper, two deep and cut to fit the box, and upon these place the best moss you can obtain. I get mine from trunks of trees in a neighbouring wood, have it carefully picked over and well watered the day before a show, and then, using the coarser portion for a substratum, make my upper surface as clean and green and level as I can.

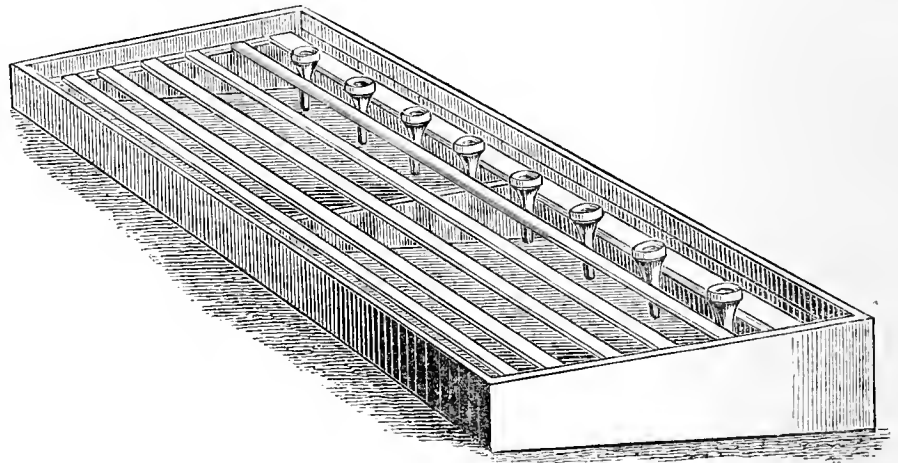


Fig. 119.

Fronds of Ferns, especially of *Adiantum*, are sometimes prettily introduced.

"It would, I think, repay the rosarian to grow moss specially for this purpose such as would thrive—*Selaginella denticulata*, for example—in rough boxes and waste places under stages or in vineries. Some years ago I placed a lining of zinc 3 inches deep at the top of one of my Rose boxes, filled it with earth, and soon obtained from it a charming surface of *S. apoda*.

"The Roses are placed in tubes of zinc $4\frac{1}{2}$ inches in length, 2 inches wide at the top, gradually tapering until they become 1 inch in width at the centre, the tops being moveable, as shown in fig. 120. This top is taken off, and the stalk of the flower being brought through until the Rose is held securely, it is replaced upon the tubes, previously filled with pure rain water. These tubes not only facilitate the arrangement of the flower, but they retain the water when rough railway porters forget their gradients. They may be had from the brazier and tinman everywhere, and the cost is 4s. per dozen.

"The young knight will not be armed *cap-à-pie* until he has supplied himself with a couple of helmets. If the weather is showery or the sun scorches just before a show, many Roses may be advantageously shaded by having a zinc cap placed over them 8 inches in diameter, 5 inches in depth, ventilated, and having a socket attached, which may be moved up and down a stake fixed by the Rose tree until the cap is secured in its position by a wooden wedge inserted between the socket and the stake (fig. 121). Roses of a more delicate complexion than others—such as Madame Lacharme and Monsieur Noman—and some whose vivid colouring is quickly tarnished by fiery suns—such as the brilliant Baronne Bonstetten, Louis Van Houtte, Reynolds Hole, and Xavier Olibo—may be thus preserved for exhibition. Fresh Cabbage leaves, renewed from time to time, may be advantageously placed on the caps, which, I may add, have a more pleasing appearance in the rosarium when painted a dark green colour.

"These caps should be in readiness, fixed upon their stakes in the Rose beds or near them, so that they may be quickly placed in position when there is peril from fire or water—when fierce suns come suddenly forth, or when those first large drops, which have been poetically termed 'tears of the tempest weeping for the havoc to follow,' give warning of

the storm. Many a grand Rose have I saved by promptly acting upon this admonition, and have come indoors with my heart rejoicing under its moist merino waistcoat.

"Helmet No. 2 resembles No. 1, except that the top is made of glass and is flat. This is used to accelerate the opening of Roses, and sometimes with success; but generally I have found that nature will not be hurried, and the Rose has been more refractory than the heat.

"In using these caps—and their use, be it remembered, is exceptional—the amateur must be on his guard against placing them too near the Rose, lest, when moved by the wind, the petals should be injured by trituration. And not only in this instance, but in all, he must so watch his trees as to prevent all risk of that contact and chafing which quickly ruins the Rose. Watching the flower as it sways to and fro in the summer breeze, he must remove all leaves and shoots which, touching it, would mar its beauty.

"I strongly advise the amateur who has no such wealth of material, and must make the most of his limited means, to cut his Roses whenever he has the option—that is, the time—upon the morning of the show. If

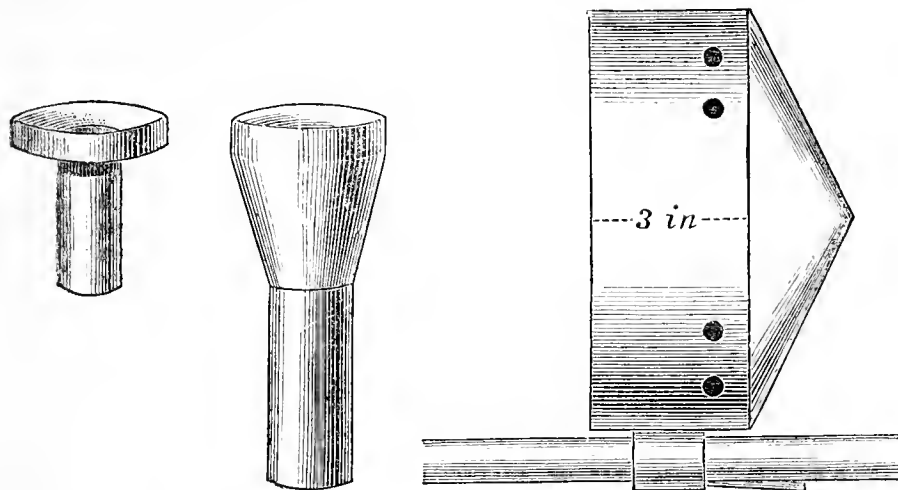


Fig. 120.

Fig. 121.

the weather is broken, and clouds without and barometer within warn you of impending rain, then gather ye Roses while ye may, in the afternoon and the evening before the show; but if it is

In the prime of summer-time,
An evening calm and cool,

let your Roses rest after the heat of the day, and cut them on the morrow, when they awake with the sun refreshed with gracious dews."

Those who desire more particulars on growing and showing Roses will find them in the "Book."]

SCOTTISH PANSY SOCIETY.

As certainly as the third Friday in June comes round, so surely do we find the Pansy holding high court in the beautiful metropolitan city of Scotland. For the past forty years the florists have worshipped the flower of their choice, and, if we may judge from appearances at the past Show on Friday last, that flower has never had so many patient wooers for her favour. We may occasionally be amused at the peculiarities of ardent florists, but to them we are indebted, and solely indebted, for one of the most beautiful of hardy flowers, and flowers, moreover, that are within the reach of everybody who has a few yards of garden ground. To the uninitiated in the nice points of judging the Show and Fancy varieties there would appear to be slight improvement on these during the past few years; but there is an improvement nevertheless. However, in the case of the Violas the most startling improvements are apparent. In ordinary garden decoration these newer forms, "fancy" in their colouring, have a great future before them, and gardeners wishful of keeping abreast of the times should secure a selection of the best novelties—not for bedding, but for dotting about on borders, and above all for filling small glasses. The one feature of the Show that was displeasing was the exhibits in the classes devoted to ladies for decorating epergnes, baskets, glasses, &c. Pansies and Violas were the only flowers allowed, and well these are fitted for the purpose, but in no case did we find a single shoot or leaf of a Pansy employed as a setting. There was Maiden-hair in superabundance, common Ferns, Myrsiphyllum, Myrtle, and many other kinds of foliage, but there was not one naturally arranged.

The prize list is such a long one, and the number of competitors so large, that we cannot do more than note some of the more generally interesting classes. Of these the few devoted to nurserymen are most noteworthy on account of the excellence of the blooms staged, and also because the best varieties were therein found. For eighteen Show sorts Mr. Sutherland, Lenzie, took the premier position with clean, even, and beautiful blooms. The names of these were James Edgar, D. L. Whitton, David Malcolm, Archie Ormiston, Peter Lyle, dark selfs; Mrs. Dobbie and Mrs. Turnbull, white selfs; Gomar and Geo. McMillan, yellow selfs, the latter also taking the prize for the best yellow self; Jessie Foote (the best white ground), Mrs. J. Millar, Mrs. D. Wallace, N. D. Pownall, and Mrs. Ewart, white grounds; David Dalgleish, William Dickson, Sir W. Collins, and Dr. D. P. Stewart, yellow grounds; Miss Bowie, a primrose self, and an unnamed seedling. Messrs. Paul & Son, Paisley were second, and Messrs. Ormiston & Co., Anstruth, third. In the latter stand to Archie Ormiston was awarded the prize for the best dark self, and in Messrs. Dickson & Co.'s stand J. Balfour Melville was chosen as the best Pansy in the Show.

In the corresponding class of eighteen Fancy varieties Messrs. R. B. Laird & Sons, Edinburgh, were placed first with a stand of beautiful blooms. The sorts were Evelyn Bruce, Miss Bliss, Hecla, Countess of Home, May

Tate, James Gardiner, Mrs. Scott Plummer, William Dean, Mrs. J. W. Bennet, William Wondle, Mrs. McComb (extra fine), Peter Nicol, Mrs. Jameson, Mrs. Forrester, William Bennet, Perfection, J. Murray, Prince Silverwing, Mrs. J. D. Donald, Catherine Agnes, and seedlings. For these Messrs. Dickson & Co. were second, and the same firm were first for six seedling Show Pansies—Paragon, a clear yellow self; Archibald Roland, very dark yellow self; William Frater, very dark plum self; and Dr. Hector Wilson, a white self, being the best varieties. For twenty-four bedding Violas Messrs. R. B. Laird & Sons were first; the most striking varieties were Columbine, Duchess of Albany, Mrs. Cobham, Skylark, Queen of Crimsons, William Palmer, Mrs. J. Cowan, Countess of Kintore, Mrs. Peebles, and Owen Cameron. In Messrs. Dickson & Co.'s second-prize stand the most noteworthy were Merchiston Castle (very beautiful), The Meams, and Break of Day.

The chief competitions in the gardeners' classes were those for eighteen Show Pansies, Mr. Borrowman, Beeslack, taking the first place; Mr. R. Stewart, Lenzie, the second; and Mr. R. Miller, Paisley, the third. Mr. Cuthbertson, Corstorphine, was first for twelve blooms, and Mr. Borrowman second, the same exhibitors occupying the same positions for six blooms. In the Fancy classes for eighteen blooms Mr. Borrowman again took premier position with a stand of fine blooms, Mr. Stewart running a close second. Mr. Robert Smith, Aberdeen, showed twelve fine blooms for the first place for these, Mr. Borrowman being a good second; and for six blooms Mr. Cuthbertson had first, and Mr. McComb, Montrose, second.

In the amateurs' classes, and for eighteen Show sorts, Mr. Ritchie, Denny, was first; Mr. L. T. Fleming, Berwick-on-Tweed, second; and Mr. James Skinner, Penicuik, third. For twelve the first prize went to Mr. Stewart, Campsie; the second to Mr. Ritchie, who also had first for six, Mr. Thomson, Penicuik, being second. Mr. Storrie, Lenzie, was awarded first for eighteen Fancy sorts, and Mr. Stewart second; and for twelve blooms Mr. Galloway had first and M. L. T. Fleming second; Mr. Black, East Calder, being first for six blooms.

In the classes open to gardeners and amateurs the latter carried off all the prizes, Mr. Galloway being first for six Show and six Fancies; for eighteen Fancies Mr. Storrie; and for twelve Show and twelve Fancies Mr. L. T. Fleming. For four Pansies in pots Mr. Black was awarded the prize, the plants being strong and well bloomed. In addition to those already noted in the best single-bloom classes Mr. Ritchie showed a seedling for the best yellow ground; Mr. Stewart the best white self with Mrs. Dobbie; Mr. McComb the best mauve; and Mr. Ross the best crimson self respectively. The other prize blooms could not be found—indeed the whole arrangements from a reporter's point of view were far from satisfactory.

First-class certificates were granted to the following, all Fancies:—To Mrs. P. Lutz from Messrs. Dobbie & Co., Rothesay; to Mrs. Greive from Mr. Black, East Calder; to Mrs. Ferguson from Mr. Borrowman, Beeslack; and to Mrs. Gladstone from Messrs. Paul & Sons, Paisley.

The following are the classes devoted to ladies:—"A table glass arranged with bedding Violas," for which Miss Owen, Knockmillar, was first and Mrs. Laird second. "Most tastefully arranged small glasses of bedding Violas," first Mrs. D. P. Laird, second Miss Greive. "Basket bedding Violas," first Miss Balfour, second Miss Effie Welsh. "For the most novel and tasteful design in Pansies and Violas," first Mrs. D. P. Laird, equal second Miss Balfour and Miss Owen.

AURICULAS IN IRELAND.

My acquaintance with these dates back just about half a century. Those were the days when Dr. Plant reigned supreme, occupying in Ireland much the same position as Mr. Horner does in this country, but they were days before many of our best varieties were invented. There were no George Lightbodies or Lancashire Heroes, no Smiling Beauty or Acmes, no Pizarros or Heroines; but they were none the less days when the Auricula was understood and well cultivated, when varieties which we rarely see were grown in great perfection, unless indeed youthful reminiscences are, as they often are, coloured largely with rosy tints. Have I not seen in the doctor's collection row after row of Booth's Freedom and Page's Champion? And then what Colonel Taylors he used to exhibit! what grand Glories! and unless my recollection betrays me, Hey's Apollo was a beat on many of the blue selfs we now have. But those days are long past, and many of the flowers then exhibited would not be tolerated now. Then, again, some twenty years ago I knew how well Auriculas were grown, how excellent Mr. Tandy used to grow and show his plants, how select was his collection; here, indeed, all the crack varieties were to be found in quantities, and Lightbodies and Heroes which would delight the most critical northern taste were in abundance, for he had no sympathy with the coarse overgrown flowers which too often find favour with the southerners in England, and his success at the spring shows of the Royal Horticultural Society of Ireland bore witness to the excellence of his culture; but removal led him to abandon their culture, although his love for them has no way diminished.

In my recent visit I was informed that the same decadence in the culture of florists' flowers which we have lamented in the south of England has prevailed in and about the Irish metropolis. I heard of one or two growers besides those I visited, but as a fact Auriculas do not hold the position there they once did. The two collections I did see were those of my excellent friend and thorough florist, the Rev. F. Tymons of Baden Hill and Mr. Edward Kavanagh, nurseryman, of Ballybrack, and a few notes on these may not be unacceptable to the lovers of the flower.

Mr. Tymons' garden, a delightful old-fashioned one full to overflowing of grand herbaceous and alpine plants, is situated near Portmarnock, on the north side of the city, a place dear to the entomologist, and where in my early days I made many an excursion in quest of Lepidoptera and their larvæ; and there is a delightful view of Howth and Ireland's Eye from the front of his snug little bungalow. His collection of Auriculas is not large, but then it is very select. By degrees he has rooted out all the inferior varieties, and is confining himself to the really standard

sorts. These I need hardly enumerate, but he spoke highly of Mr. Douglas (Simonite) as a fine self, and of Acme as a really grand white. In greys he has seen nothing yet to surpass those well-known favourites George Lightbody and Lancashire Hero. He has Conservative, Mr. Douglas's fine new flower, and others of grand repute which are not in the lists. His Richard Headleys are well known, and are of a very superior character, as the plants he sent to Manchester last year will bear witness. Never probably was such a plant of that very chaste and refined flower shown. I need not say that his plants, though not overgrown, were in good condition. He grows them for themselves, as he has given up exhibiting them.

Mr. Kavanagh's collection is one of the most extensive I have seen of late years. He lives at Ballybraek, a charming village on the Wicklow side of Killarney; and he is one of those who grow Auriculas not so much as a source of profit as because he loves the flower. Frame after frame was filled with large and well-grown plants of most of the leading kinds in luxurious health, and evidently delighting in the care with which they were treated. Large quantities of Robert Traill, Mrs. Sturrock, George Lightbody, and most of the good sorts were there, while such kinds as Prince of Greens, F. Simonite, and others of the same varieties were of course in smaller quantities; but judging from the pots full of offsets in healthy condition of many kinds he will not be long before he establishes these also in quantity. In the years 1882 and 1883 Mr. Kavanagh carried all before him, and Mr. Tandy, who, as I have said, is no mean judge, assured me that (which I can readily believe) his plants were in superb condition. Is there any flower that so much excites the love of its owner as the Auricula? Who that has ever grown it likes to give it up? and Mr. Kavanagh is no exception to the rule. My only regret was that besides the plants I did not see the owner, who was described to me as a worthy and excellent man, and is without doubt an enthusiastic grower of this lovely flower.—D., Deal.

ROYAL HORTICULTURAL SOCIETY.

JUNE 24TH.

THE combined attractions furnished by the fruit and vegetables in competition for the numerous prizes, with the plants and flowers shown before the two Committees, constituted an exhibition of great beauty, and rendered the conservatory on that day the favourite and most frequented portion of the "Healtheries." Especially bright and charming were the hardy flowers which at recent meetings have been so much admired, and which were there even more beautiful than ever, the Irises alone supplying a feast of colour.

FRUIT AND VEGETABLE SHOW.

In accordance with the expectations which have been previously referred to, this second exhibition proved very satisfactory in every respect, the competitors being more numerous than at the preceding Show, and the quality of the produce, particularly in the Grape classes, being much in advance. In several classes indeed the exhibits were the best that have been staged at any of the leading shows this season, and it was doubly pleasing to see this Society's exhibition to the fore with the most useful of horticultural produce—fruit and vegetables.

Collections.—The most important class in the schedule was that for eight kinds of fruits, black and white Grapes to be regarded as distinct, the prizes being £7, £5, and £3. Three doughty champions entered the field, and premier honours were awarded to Lady Henry Somerset, Eastnor Castle (gardener Mr. Coleman), who had a beautiful even and excellent collection. The Grapes were Black Hamburg, large in bunch and berry, but slightly rubbed; and Foster's Seedling, unusually large in berry for this variety, but a little wanting in colour. A handsome Queen Pine, over 5 lbs in weight and well proportioned, was another strong point; Royal George Peaches, large and of good colour; Lord Napier Nectarines, very handsome; Brown Turkey Figs, well ripened; Bigarreau Napoleon Cherries, large and ripe; and a beautifully netted Blenheim Orange Melon, completed a most creditable collection. Mr. G. T. Miles, The Gardens, Wycombe Abbey, was adjudged the second prize for a collection very few points behind the other. His best fruit was a magnificent Queen Pine, weighing 6 lbs., finely proportioned and excellent in colour. Three good bunches of Gros Colman Grapes, weighing 6 lbs., were much admired, the berries being large and the bloom dense, but the Judges evidently gave the preference to the Black Hamburgs in the preceding lot. Mr. Miles's Foster's Seedling was much larger in bunch and of better colour, though the berries were smaller. Royal George Peaches and Lord Napier Nectarines were similarly notable dishes. H. A. Brassey, Esq., M.P., Preston Hall, Aylesford, Kent (gardener Mr. A. Waterman) was third with Black Hamburg Grapes, large and handsome; Buckland Sweetwater Grapes, very fine in berry; Elruge Nectarines, remarkably handsome; and a good Hero of Lockinge Melon.

Pine Apples.—Seven pairs of fruits were entered; J. A. Rolls, Esq., The Hendre, Monmouth (gardener Mr. Coomber), taking the lead with two even, handsome, finely ripened Queens. Mr. Miles followed with the same variety, 5½ lbs. each, but scarcely ripe enough; and L. J. Baker, Esq., Haydon Hall, Eastcote (gardener Mr. J. Fry), was third with small fruits.

Grapes.—A capital display of these was formed both in the black and white variety classes. For a basket of black Grapes to weigh 12 lbs. there were four competitors; Mr. James Tavener, Woolmer Gardens, Liphook, Hants, securing first honours with grand examples of Black Hamburg with enormous berries and bearing a most dense blue-black bloom, such as is rarely seen. The same variety was shown by the other exhibitors; J. Hargreaves, Esq., Maiden Erlegh, Reading (gardener Mr. T. Turton), being second with smaller bunches and berries and less bloom, but of good quality. Mr. Coleman was third with still smaller samples. The competition was keen in the class for two bunches of black Grapes, eight lots being staged. Again Mr. Tavener was far ahead of the others with Black Hamburg similar to those in the basket, really magnificent, and one of the bunches was characterised by one of the most experienced growers "as nearly perfect as could be imagined." Mr. C. Herrin, The Gardens, Chalfont Park,

Gerrard's Cross, was awarded second honours for good Black Hamburg, well ripened; and Viscount Eversley, Heckfield (gardener Mr. Wildsmith), was third with the same variety in fair condition. Six pairs of bunches of white Grapes were contributed, Mr. Herrin securing the leading place with Foster's Seedling, very handsome in bunch and berry. Mr. W. Bates, The Gardens, Poulett Lodge, Twickenham, followed with Buckland Sweetwater of good colour; and Mr. Tidy, The Gardens, Stanmore Hall, took the third position with Foster's Seedling, one of the bunches being very large.

Strawberries.—Some large and richly coloured fruits were shown in the three classes for Strawberries, though there was a tendency to coarseness in a few cases. The best of the five entries of three dishes was from Mr. Sharpe, the Royal Strawberry Gardens, Knowle Hill, Chertsey, which included large but somewhat rough fruits of Empress Eugenie, Marguerite, and Sir Joseph Paxton. The second prize went to Roger Leigh, Esq., M.P., Barham Court, Maidstone (gardener, Mr. C. Haycroft) for Duc de Magenta, President, and Sir Joseph Paxton, smaller, but of good colour. Mr. Turton was third with the two last-named varieties and Vicomtesse Hericart de Thury of fair size and colour. A class was provided for one dish (thirty fruits) of British Queen or any variety of that type, but only two were admitted, one lot of President being disqualified. Mr. J. Roberts, The Gardens, Gunnersbury Park, Acton, was first with British Queen, large and fine in colour; Mr. Goldsmith, The Gardens, Hollenden Park, Tonbridge, being second with Dr. Hogg of good size. For one dish of any variety W. E. Wells, Esq., Croxby House, Hounslow (gardener, Mr. G. Thompson), secured the premier award amongst seven other competitors with Sir Charles Napier, handsome in form and colour. Mr. Wildsmith followed with President, and Mr. Sharpe with Marguerite, both good samples of the varieties.

Cherries.—These made a pretty and pleasing display, the quality being very satisfactory. Mr. Roberts had the best two dishes, beautiful fruits of Elton and Black Tartarian. Mr. Haycock was second with Werder's Early Black and Elton, nearly as fine; and Mr. T. Hare, Wellingore, Grantham, was third, showing Black Circassian and Elton—three extremely close exhibits. Six dishes of fifty Cherries were staged, Governor Wood, from Mr. Waterman, leading; followed by Werder's Early Black from Mr. Haycock, and Elton from Mr. Hare, all fine fruits.

Figs.—Well-ripened fruits of Brown Turkey were entered by six competitors, Messrs. Wildsmith, Haycock, and Coleman being the prizetakers in that order, their fruits differing but slightly in merit.

Peaches.—These formed a remarkably strong class, as no less than seventeen dishes of six fruits each were staged. The Marchioness of Camden, Bayham Abbey (gardener, Mr. W. Johnston), won chief honours with extraordinarily fine fruits of Barrington, grand examples, and rich in colour. Mr. R. Farrance, Chadwell Heath, Essex, took the second place with Grosse Mignonne, very handsome, and Mr. Wildsmith was third for Crimson Galande, finely coloured.

Nectarines.—The same number of Nectarines were entered—i.e., seventeen dishes, Mr. Turton winning with Violette Hâtive of splendid colour. Mr. Haycock followed with Elruge in handsome condition, and the Earl of Leven and Melville, Fulmer, Slough (gardener, Mr. Mowbray), was third with Pitmaston Orange, also good.

Melons.—Competitors again numbered seventeen in this class, but much diversity was noticeable in the exhibits, some being excessively large and others proportionately small. Some exception was, however, taken to the judging in this class, owing to none of the fruits being cut. Mr. Mowbray won leading honours with Victory of Bristol, a beautiful even and well-netted fruit. Mr. Coomber was second with Best of All, similarly good, and Mr. Wildsmith took the third place with Hero of Lockinge.

Miscellaneous Fruits.—This was provided for Bananas, or any other fruits to which classes were not devoted. Mr. G. Thompson was awarded first honours for twelve pots of Strawberries, six of Sir Charles Napier and the same number of Sir Joseph Paxton. They were well fruited, bearing from two to three dozen each. Mr. Coleman secured the second prize for a dish of excellent Nonpareil Citrus of a fine golden yellow colour, and Mr. W. H. Ussher, 46, Lorne Terrace, Bath, was third for a beautiful dish of Bananas.

Collections of Vegetables.—Vegetables were capitally represented, fine, clean, and admirable collections of ten kinds being staged. Premier honours were secured by Mr. G. T. Miles for most praiseworthy samples of Stamfordian Tomatoes, Asparagus, Pride of the Market Peas, Moore's Cream Marrow, Erfurt Cauliflowers, Canadian Wonder Beans, Green Globe Artichokes, Lady Paget Potatoes, Nantes Horn Carrots, and White Naples Onions. Mr. Waterman was a close second, his best dishes being Stamfordian Tomatoes, Culverwell's Telegraph Peas, Canadian Wonder Beans, and Conover Colossal Asparagus. The Earl of Radnor, Coleshill House, Highworth (gardener, Mr. S. Haines), secured the third place with a clean and creditable collection, in which the Stamfordian Tomatoes were very notable.

Potatoes were strongly represented, eleven dishes of twelve tubers were shown; Viscount Barrington, Beckett Park, Shrivenham (Mr. W. Meads), taking the leading place with excellent samples of Woodstock Kidney; the Right Hon. Earl of Radnor, Longford Castle, Salisbury (gardener, Mr. Ward), was second with the same variety, and Mr. Miles was third. The best Cauliflower, Early London, were shown by the Hon. W. P. Talbot, Glenhurst, Esher (gardener, Mr. Waite), Messrs. Ward & Woodbridge following with Walcheren. Mushrooms were exhibited by Messrs. Haines, Tidy, and Coleman, who took the prizes in that order. Mr. Farrance won chief honours with Trophy Tomatoes, large and handsome, Mr. Miles following with Vick's Criterion.

Peas.—A great number of Peas were exhibited in the three classes devoted to them, and for the season they were all very good. With three dishes Mr. Ward was first, showing Carter's Stratagem, Telephone, and Telegraph, beautiful, even, and well-filled pods. Mr. Muir followed with Giant Marrow, Paragon, and Telegraph; and Mr. Waterman was third. Eight half pecks of Peas were staged, Mr. Haines leading with Stratagem, Mr. Muir and Mr. Nelson being second and third with Duke of Albany and William I. Mr. Muir gained the premier position with a collection of Peas, showing fine pods of Paragon, Pride of the Market, William I., Telephone, Giant Marrow, Telegraph, Jefferies' Edible-podded Pea, Duke of Albany, and Stratagem. Messrs. Haines and Ward were the other prizetakers.

With Broad or Longpod Beans Mr. Ward was first for Leviathan and

Seville Longpod, very fine specimens. Mr. Miles followed with the same varieties, and Mr. Steggle, Faulkners, Hadow, Tonbridge, was third with Aquadulce and Seville Longpod. The best Kidney Beans were Canadian Wonder from Mr. Waterman, followed by Messrs. Miles and Haines with the same variety. Carrots were well shown by Messrs. Waterman, Meads, and Miles, the varieties represented being French Forcing and Nantes Horn. Cucumbers were numerous, but not of remarkable merit, many being rather rough. Mr. Muir was first with a large collection of Lettuces, and the Right Hon. Earl Normanton, Somerley Park, Ringwood, obtained similar honours for a clean and excellent collection of salads, very tastefully set up.

Special Prizes.—Messrs. Webber & Co., Covent Garden, offered three prizes for the best packed three boxes of fruits—one box of Grapes, one of Peaches, and one of Nectarines. Mr. Turton secured first honours for very carefully packed samples. The Grapes were firmly placed together on tissue paper, covering a good padding of wool; the Peaches were separately wrapped in tissue paper and placed in dried moss in shallow boxes, one fruit deep; and the Strawberries were wrapped separately in Vine leaves in a shallow box. Mr. Coleman, who was second, had his fruit packed in a similar manner, but moss was employed as the padding in all the boxes. Mr. Eldridge, the Gardens, Chesterfield Park, Saffron Walden, was third, with similar examples of packing. Messrs. Wheeler & Sons, Gloucester, also offered a prize for samples of Kingsholm Cos and Tom Thumb Lettuces, and Mr. Muir was the only exhibitor, having very good specimens.

COMMITTEES.

FRUIT COMMITTEE.—Present: Henry Webb, Esq., in the chair, and Messrs. John Lee, G. M. Breese, G. Bunyard, J. E. Lane, C. Ross, W. Paul, R. D. Blackmore, J. Ellam, G. T. Miles, H. J. Veitch, J. Roberts, and T. C. Mundell. Melons were again largely shown, but they received no special recognition. Mr. Howe, Benham Park Gardens, Newbury, was awarded a vote of thanks for his Pink Perfection, a cross between William I. and Hero of Lockinge, a neat and well-flavoured Melon. Benham Beauty, from the same grower, was also attractive. Mr. Ross, Welford Park Gardens, showed a cross between Dickson's Exquisite and Hero of Lockinge, of good appearance. Mr. Wiles, Edgcott, Park Gardens, Banbury, sent a Melon named Hero of Edgcott, a cross between Eastnor Castle and Dr. Hogg, a large pretty netted fruit of fair flavour. Mr. Parr, Givons Grove, Leatherhead, also sent a sample of the Goodwood Melon, which weighed 14 lbs. 2 ozs., but it was not to be cut, so no opinion could be formed as to its merit. Mr. Roberts, The Gardens, Gunnersbury Park, sent three bunches of Duke of Buccleuch Grapes, with the object, as was explained in a letter, of proving that this variety can be grown free from spot. The berries were large and perfectly clean, their condition being most satisfactory, and Mr. Roberts well deserved the cultural commendation awarded for them. The Committee also expressed a desire to see them again. Mrs. Spottiswoode, Coombe Bank, Sevenoaks (gardener, Mr. Bolton) showed branches of Bolton's Prolific Gooseberry, which were bearing a fine crop of rather small berries.

FLORAL COMMITTEE.—Section A. Present: Mr. John Fraser in the chair, and Messrs. H. Ballantine, H. Williams, F. R. Kinghorn, E. Hill, J. O'Brien, J. Woodbridge, the Rev. G. Henslow, and Dr. M. T. Masters. Section B. Present: Shirley Hibberd, Esq., in the chair and Messrs. H. Caunell, W. Bealby, G. Driffild, and H. Turner.

A choice collection of Tree Carnations, Pinks, and Pelargoniums was contributed by Mr. C. Turner, Slough, for which a vote of thanks was accorded. Of the Tree Carnations, the beautiful rose self, Mrs. Llewelyn, and the pure white Water Nymph, were very notable, both being useful free varieties of strong habit. Several of the Pinks were very handsome, and one was certificated. Of the Pelargoniums, an effective Show variety was The Czar, which has scarlet lower petals, the upper darker, and the centre white. Boira was a similar type, but with white and crimson petals, very pretty. J. T. D. Llewelyn, Esq., Penllergare sent three pretty Primulas—namely, *P. suffruticosa* of half-shrubby habit, with small leaves and diminutive pink flowers; *P. luteola*, one of the *P. sikkimensis* type; and a dark variety of *P. capitata*. Mr. H. Bennett, Shepperton, was accorded a vote of thanks for boxes of "Pedigree" Roses and others, very beautiful being Princess of Wales, the Earl and Countess of Pembroke, Lady Mary Fitzwilliam, and Grace Darling. A vote of thanks was accorded to Messrs. Laing & Co., Forest Hill, for a charming group of single and double varieties of Tuberous Begonias, representing a number of distinct novelties, several of which were certificated. A collection of Verbena blooms from Mr. Stacey, Dunmow, Essex, was similarly recognised. Mr. Aslett, Warren Wood, Hertford, sent some fine double Begonias; and Mr. G. Prince, Oxford, had several boxes of fresh and beautiful Tea Roses, large and of the usual quality distinguishing Mr. Prince's exhibits of that kind. Especially notable were Catherine Mermet, Etoile de Lyon, Comtesse Naudillac, and Alba Rosea, the last being grown in large quantities at Oxford. A vote of thanks was accorded to Mr. Pollett of Bickley for a small collection of well-grown Orchids; and from the Royal Horticultural Society's Gardens at Chiswick were sent some pretty Begonias, a plant of the noble Saxifraga longifolia with a grand panicle of flowers, two pans of Orchis foliosa with six and eight spikes each, Mimulus, and the violet-coloured Toronia Fournieri in first-rate condition. Messrs. James Veitch & Sons, Chelsea, and Mr. B. S. Williams, Upper Holloway, exhibited several beautiful new Orchids and other plants, which were certificated.

An extensive and charming collection of hardy flowers was shown by Messrs. Veitch & Sons, comprising Irises, Pyrethrums, Ixias, the useful Gladiolus Colvilli alba, G. byzantinus, and a fine strain of Sweet Williams, for which a bronze Flora medal was awarded. Similar groups were contributed by Messrs. Barr & Son, Covent Garden, and Mr. T. S. Ware, Tottenham, for which a silver Banksian and a silver-gilt Flora medal were respectively awarded. The Tottenham group was particularly handsome, and it is doubtful if a more effective collection of hardy flowers has ever been shown. Messrs. Hooper & Co., Covent Garden, and Messrs. Kelway & Son, Langport, also staged collections of beautiful Gladiolus, Irises, and Pyrethrums, which furnished additional attractions to the Show of considerable value.

First-class certificates were awarded for the following plants:—

Rhododendron President (Veitch).—One of the greenhouse hybrid class, and a magnificent form. The flowers are particularly large, grand tubes 2½ inches across at the mouth, with rounded lobes. The colour is a

yellowish buff with a slight pinkish margin to the lobes, the heads containing six flowers.

Drosera auriculata (Veitch).—A peculiar species, with slender trailing or climbing stems, and diminutive round leaf blades somewhat like a small form of *D. rotundifolia*, but quite different in habit.

Philodendron grandidens (Veitch).—A handsome foliage plant, the leaves sagittate, of a bronzy green hue with a velvety surface 18 inches long by about 8 inches or 9 inches broad.

Odontoglossum excellens (Sir Trevor Lawrence).—An extremely distinct and beautiful Orchid; sepals yellow with bars of chocolate, petals with a white centre margined with yellow, lip white with a few brown blotches.

Odontoglossum Alexandræ Veitchianum (Baron Schröder).—A grand variety, similar to Messrs. Veitch's mirabile. The flowers are beautifully formed, having broad sepals and petals white, with a faint band of pale purple near the margin, and a few chocolate spots.

Lælia Dominiana rosea (Baron Schröder).—Remarkable for the deep crimson colour of the slightly fringed lip, and rosy colour of the sepals and petals.

Anguloa Ruckeri sanguinea (Crawshay).—Distinct from the ordinary *A. Ruckeri* in the darker purplish crimson colour of the inner portion of the flower, which is greenish externally.

Odontoglossum Williamsianum (Williams).—Described as a hybrid between *O. grande* and *O. Schlieperianum*. A most distinct and handsome form, with bold flowers 4 inches across, the petals being 1½ broad, blunt and rounded, the upper half clear yellow and the lower brown. The sepals are barred with brown on a bright yellow ground, the lip being of a paler ground colour with a few brown spots. The spike was a strong one bearing twelve flowers.

Lælia purpurata atro-purpurea (Williams).—A handsome richly coloured variety, the lip being of a very dark crimson hue.

Croton Flambeau (Williams).—A graceful narrow-leaved variety. The leaves 1 inch broad and about 18 inches long, deep red, and dark green mottled with yellow. Elegant in habit, and colours well in a young state.

Tea Rose Sunset (W. Paul & Son).—Very fragrant; blooms full, orange yellow in the centre, lighter on the outer portion of the flower.

Odontoglossum citrosum, pure white variety (Dr. Soper).—Flowers of good size and pure white.

Verbena striata (Stacey).—A neatly shaped variety; flowers large, white, with regular stripes of pink.

Tuberous Begonia Her Majesty (Laing).—Single; very handsome and distinct. Flowers of great size and excellent form, white, with a pink margin.

Tuberous Begonia Torey Laing (Laing).—Single. Orange yellow; free and effective, a useful and charming variety.

Primula capitata Hooker's variety (Llewelyn).—A beautiful variety, with much darker violet-purple flowers than the ordinary form.

Pelargonium purpureum (Turner).—A Show variety with superb flowers; broad handsome petals, the lower ones pink and the upper dark maroon, with a white centre.

Pink picturatus (Turner).—A most attractive variety, with well-formed flowers; the petals white, heavily laced with pale purple. Very free and useful.

SCIENTIFIC COMMITTEE.—Mr. A. Grote in the chair.

Photographs of Araucaria imbricata (male) and *Chamaerops excelsa*.—Mr. Farrant of Ballamoor, Isle of Man, sent excellent photographs of these trees. The former was the one alluded to in the last meeting, and bearing an extraordinary number of male catkins. The latter, Mr. Farrant says, has flowered profusely and continuously for the last ten years, and has never been affected by the severest frost.

Fusisporium microphytum.—Mr. W. G. Smith exhibited drawings of this fungus with brown spores, growing on the gills of Agaricus. The question was raised whether it was epiphytic or truly parasitic. It also grows on the gills of the bedding Mushroom.

Saprolegnia mucophaga (W. G. Smith).—Mr. Smith proved by cultivating in water the well-known white mould familiar on the gills of bed Mushrooms, that it was a new small species of Saprolegnia, which he proposes to call *S. mucophaga*.

Sphaerella Taxi.—Hon. and Rev. Mr. Boscawen sent specimens of Yew attacked by this fungus about six years ago. It has now travelled as far west as Dorset, and is destroying the Yew trees at Sherborne.

Acidium convallariæ.—Mr. Smith also exhibited specimens of this fungus, new to England, and which was seriously injuring the Lily of the Valley in Westmoreland, and which he thinks is very likely to spread to cultivated Lilies.

Tragopogon.—Dr. M. T. Masters exhibited a specimen of *T. pratense*, in which the florets were all "tubular" instead of being "ligulate," and the pappus sub-foliateous.

Fasciated Scrophularia.—Mr. Houston brought a tall and fine fasciated stem of this plant.

Potato Disease.—Mr. Laxton of Bedford reported the first and very early appearance of the Potato disease at Bedford.

Amanita Pantherinus.—Mr. Boulger showed an instance of a specimen gathered some days ago, and which, being confined horizontally in a tin box, had become erect by apogeotropism.

Double White Rocket.—Mr. Loder exhibited a fine pure white specimen for contrast with the lilac-tinted variety grown on the continent.

Dianthus alpinus crossed with D. barbatus.—He also exhibited blossoms of this hybrid, which at first were white like the female parents (a white var.), and then turned to deep crimson subsequently. *D. alpinus* crossed by *D. superbus* was shown by Professor M. Foster, in which the silky appendages of the petals had almost entirely disappeared. Mr. Lowe remarked that some starved specimens of *D. alpinus* were not distinguishable from *D. deltoides*.

Ulex nana var.—Mr. Lowe described a plant with prodigious thorns, resembling a *Colletia horrida*.

Irises.—Professor M. Foster exhibited a large and interesting series of Irises, the results of his crossings, &c. Of original species were *I. kumaonensis*, but not the typical bright blue. It belonged to the *Diets* section, and seemed allied to *I. nepalensis*. It had roots like that of *Hemerocallis*. *I. plicata* crossed by *I. variegata* var. The produce differed very materially from both parents. Seedlings of *I. ochroleuca*, mostly lilac-tinted, but a

few were yellow, like the type. *I. variegata* (yellow) crossed by *I. pallida*. One seedling was pure white, quite unlike the parents.

Iris hexagona.—Mr. Lynch sent a specimen of this species from Florida, and which flowered for the first time at Cambridge. It had long sepals, greenish externally, and lilac petals.

Monstrous Digitalis.—Rev. J. Henslow exhibited a monstrous blossom of a kind not uncommon in the Foxglove. The bracts below the terminal flowers graduated into sepals, four of which were half-petaloid. The corolla had a regular tube with fifteen lobes, but was split down one side, and carrying thirteen stamens; within the tube was a gamosepalous calyx of seven sepals, and which contained an irregular mass of abortive virescent or partly spotted petals mixed with stamens. Within this was a similar structure. The repetition of calyx, petals, and stamens is somewhat similar to some kinds of double Daffodils and the double *Helianthemum vulgare*.

Monstrous Antirrhinum.—Mr. James King, of Rowsham, Aylesbury, sent some remarkably malformed Snapdragons, called the "Rowsham Pet," and which received a second-class certificate. It showed a tendency to be polypetalous, but with a multiplication of parts of the corolla as well as of the stamens. It was abortive, but propagated by cuttings. It was referred to the Rev. G. Henslow for further examination and report.

Clematis.—Mr. Noble sent a *Clematis* called "Proteus," which, after producing very double flowers at the end of June, rests for a month and then flowers again, as is the habit with other kinds, but differs from the latter in bearing single blossoms only. This was the case in 1883.

COMING FLOWER SHOWS.

EXHIBITIONS are as numerous as ever, the following being those for June, July, August, and September, of which we have received any notification at present:—

- June 26th.—Richmond. Canterbury (Roses).
- " 28th.—West Kent. Camden Park, Chislehurst. Reigate (Roses).
- July 1st.—Edinburgh International Forestry Exhibition. National Rose Society, South Kensington. Stoke Bishop.
- " 2nd.—Royal Botanic Society's Evening Fête. Hull (three days). Wimbledon. Cardiff.
- " 3rd.—Bury St. Edmunds. Winchester (two days). Bath (Roses). Chiswick. Farnham (Roses).
- " 4th.—Sutton (Roses). Tunbridge Wells.
- " 5th.—Crystal Palace (Roses).
- " 7th.—Brockham (Roses).
- " 8th.—Royal Horticultural Society, Fruit and Floral Committees; Promenade Show.
- " 9th.—Edinburgh (two days). Salisbury (Roses). Lee (two days).
- " 10th.—Oxford (Roses).
- " 14th.—Wolverhampton (three days).
- " 16th.—Bedford.
- " 17th.—Carlisle (two days). Warkworth (Roses). Newport.
- " 19th.—Manchester (Roses).
- " 22nd.—Royal Horticultural Society, Fruit and Floral Committees; Fruit and Vegetable Show; Carnation and Picotee Show.
- " 23rd.—Newcastle-on-Tyne (three days). Feltham.
- " 24th.—Sheffield (two days).
- " 30th.—Warwick.
- August 2nd.—Liverpool (two days). Southampton (two days).
- " 12th.—Royal Horticultural Society, Fruit and Floral Committees; Cottagers' Show.
- " 14th.—Maidenhead.
- " 20th.—Shrewsbury (two days).
- " 21st.—Reading.
- " 26th.—Royal Horticultural Society, Fruit and Floral Committees; Fruit and Vegetable Show. Banbury.
- September 2nd.—Stratford-on-Avon (two days).
- " 3rd.—Glasgow. Bath (two days).
- " 5th.—Crystal Palace Fruit and Dahlias (two days).
- " 9th.—Royal Horticultural Society, Fruit and Floral Committees.
- " 11th.—Bury St. Edmunds (two days). Dundee International (three days).
- " 17th.—Edinburgh (two days).
- " 25rd.—Royal Horticultural Society, Fruit and Floral Committees; Fruit and Vegetable Show.



HARDY FRUIT GARDEN.

Watering.—Now that the crop of fruit of all kinds is set and swelling it is important that the growth should be free and unchecked; there must, therefore, be no lack of moisture in the soil to afford a prompt and steady supply of food for the root-hairs. Upon the nature of that moisture depends the development of leaf, branch, and fruit; clearly, then, it should contain nutriment in a much larger quantity than water affords. We have, however, only to take the best substitute for it—house sewage—and we have a mild form of liquid manure that is safe in the hands of the most ignorant labourer. With the sound system of drainage and thorough mechanical division of the soil which we have so long and so persistently advocated, there is no danger of harmful application of sewage; and we have only to take care that enough is used regularly to keep up an ample store of fertility in the soil, with the comfortable assurance that no harm can happen from any careless excess in its use. Need we add the other important consideration, that the use of house sewage is true economy? Owners of gardens should see that there is enough labour power in the garden to insure the regular use of

the sewage—no light matter at so busy a season of the year. It is simply ridiculous to provide a cesspool, pump, and piping without affording the gardener enough helps to turn it to account.

The Foliage.—By midsummer the foliage necessary for sap-elaboration is fully developed, and its vital functions are in full activity; cleanliness and freedom from blight or insect ravages is therefore most important. Clean water forced upwards among the leaves by a powerful syringe or garden engine occasionally is good practice, tending, as it does, to keep under red spider and dislodge other insects. Aphides upon Cherry shoots are easily got rid of by dipping each shoot in tobacco water, made by steeping 4 ozs. of tobacco in a gallon of water. Let the dipping be done on a calm dry evening, and syringe with clean water on the following morning. Caterpillars on Gooseberry and Currant leaves should be picked off by hand and killed. Avoid the dangerous plan of dusting the bushes now with powdered hellebore to destroy the caterpillars; the powder is a deadly poison, which might be eaten with the fruit and cause loss of life.

Strawberries.—The layering of runners for new beds should be done as soon as possible, in order that the plants may be ready for planting in July or early in August. The best way of doing this is to fill enough 3-inch pots firmly with old well-decayed hotbed manure, sink each pot to the rim in the ground with a trowel, peg the runner carefully upon the middle of the soil in the pot, and it will root quickly and well. By plunging the pots little, if any, watering is required, the cool soil around the pot checking the excessive evaporation, which is unavoidable when it stands upon the surface fully exposed to the heat of summer. Pieces of turf are sometimes recommended in preference to pots for this purpose, but we prefer the pots because they are ready to our hands, and every aid to time-saving now is important. Early summer planting means half a crop of fine fruit early next year; late summer or autumn planting of late-rooted runners means no fruit till the year after next. Even if you cannot plant early in the permanent beds, by all means secure a supply of the earliest runners, which may be planted thickly in borders and transplanted when space can be afforded them, and so get a little fruit next year.

Raspberries.—Thin new growth, and give the entire surface between the rows heavy waterings of sewage, both to assist the swelling fruit and to promote strong growth for next year's crop. Currants, Gooseberries, and American Blackberries all have sewage regularly too. The entire plantation has a surface dressing of farmyard manure, which keeps down weeds, attracts the roots to the surface, feeds them, and also acts as a mulching to check evaporation.

FRUIT FORCING.

PEACHES AND NECTARINES.—*Early Houses*.—Directly after the removal of the fruit from the trees means must be adopted for cleansing the foliage by frequent washing with the garden engine. The free exposure of the present year's growths by taking out the shoots that have borne fruit, and such as are not likely to be wanted for affording fruit next season, should also be attended to. Where this operation is judiciously performed little pruning in autumn will be required, and the young growths having had full exposure to sun and air will be thoroughly ripe, firm, and well furnished with fruit buds. Let inside borders have liberal supplies of water, affording liquid manure to trees that have been heavily cropped and show signs of exhaustion. Mark such as need lifting to check any tendency to over-luxuriance, or to add fresh loam to such as show signs of failing vigour. Nothing pays better in Peach culture than frequent lifting. The best time to perform the operation is just before the leaves fall, and being carefully performed the trees rarely cast their buds, the fruit rarely fails to set and stone well, and swell off good crops of fruit. Lifting or bringing the roots near the surface, especially when performed before the fall of the leaves, causes a free production of active surface roots, which to the early forcer are a great gain, as the trees make a quick response to the application of heat when the house is closed for forcing.

The earliest-forced house may now have the roof lights removed, but it is advisable to do this by degrees rather than exposing the trees at once to the open air; and in the case of trees that are very vigorous the lights will need to be kept on some time longer than those that have firm short-jointed growths.

Succession Houses.—The fruit of plants started in February will now be ripening, and will need a drier condition of the atmosphere with a free circulation of air. A gentle damping of the borders will be needed occasionally for the benefit of the foliage, and the trees must not be allowed to become dry at the roots. Trees in late succession houses that have passed the stoning process should be examined carefully, and all pendent fruit that can be turned up to the light and supported apex upward on laths placed across the wires forming the trellis. Stop the points of the shoots carrying fruit, otherwise allow a fair extension, but gross growths should be pinched so as to equalise the sap as much as possible. Avoid overcropping; a fruit to every square foot of surface is ample where size and quality is the first consideration, and timely thinning to that quantity will not only increase the size of the fruit but prevent any being cast through the process of stoning, which is the most trying for the trees in the whole of the forcing or growing period. Syringe freely twice a day until the fruits begin to soften or ripen, using clear soft water, as water that is hard often stains the fruit. Avoid a close moist atmosphere at night by giving air then or very early in the morning, and run up to 80° in the afternoon with sun heat after closing.

Late Houses.—Keep the trees thin of wood, not allowing more shoots to remain than will be necessary for the next year's crop or furnishing the trees. This is absolutely necessary to secure short-jointed thoroughly

solidified growth, and insure their thorough ripening. The growths should be closely tied in or down as they advance, and the fruit thinned in good time, so that those left for the crop may have the fullest support. Water the borders freely, and mulch with short manure to keep the roots active near the surface. Ventilate freely in the early part of the day, and reduce the ventilation early in the afternoon, rising to 80° from sun heat if the fruit is desired accelerated, otherwise admit air constantly if it be wished retarded in ripening.

Melons.—Under ordinary circumstances fire heat can usually be dispensed with by the middle of June, but the nights are still so cold in some districts that heat is absolutely needed to maintain a suitable temperature. See that former instructions in stopping are attended to, also thinning, tying, and otherwise arranging the fruits, which should be regularly attended to, as any neglect in these matters is certain to tell disastrously in the results. Earth-up successional plantings as soon as the roots push through the hillocks. Supports must be placed to the fruits as they require them. Examine the plants at least twice a week, seeing that they do not suffer from insufficient or too much water. Plants that are swelling their fruits should have generous treatment; when they need watering give them a good soaking of tepid weak liquid manure.

The earliest plants that were retained after the first crop will now be ripening their second crops, and will need to be kept somewhat drier and more freely ventilated. This applies equally to all houses with the fruit ripening, also to plants in pits and frames.

Pits and Frames.—In a dull cold period the plants often suffer irreparable injury, which timely attention to the linings would have prevented, as with a genial heat a little air could have been given so as to prevent damage from an accumulation of damp, resulting in canker, the non-setting and imperfect ripening of the fruits. In order to insure a good set promote a circulation of air, and have the bed dry, keeping the growths thin, and fertilise the flowers daily as they expand, stopping the shoots at the same time one joint beyond the fruits. Commence ventilating early, and close as soon as safe in the afternoon, sprinkling plants swelling off their crops at closing time.

Strawberries in Pots.—The recommendation of varieties that are best adapted for forcing is very often vague from it not being defined for what purpose the fruit is intended. For home use soft fruits answer very well, and Keens' Seedling is a great favourite, so is Marguerite, but these soft fruits travel badly. For forcing it is essential that the fruit be large and of fine appearance, and those that answer this description are La Grosse Sucrée, Vicomtesse Hericart de Thury, well thinned; and for second earlies Sir Harry, President, and Mr. Radclyffe; for late use James Veitch, Sir Charles Napier, Dr. Hogg, and Cockscumb. The runners should be laid as soon as they are obtainable in small pots in good loam, with a sprinkling of horse droppings, drawing the runners of two lines into one to save labour, and the pots are best plunged so as to lessen the necessity for watering and keep them in position. The runners, it is needless to state, should be taken from young vigorous plants—those from plants put out last summer are best—and they should be taken only from fruitful plants.

PLANT HOUSES.

BEGONIAS.—*Begonias manicata*, *Ingramii*, *Knowsleyana*, and others for autumn and winter-flowering will now be established in small pots. If well rooted place them in 5-inch pots, and grow them on in frames where an intermediate temperature can be maintained until they are rooting freely in the new soil. When thoroughly established they may be gradually hardened and grown for the summer months under cool-frame treatment, in which position they will do much better than in heat.

Begonia semperflorens.—The earliest batch raised from seed will now be in full beauty, and can be used for decoration in the conservatory, where they will continue to bloom for a long time if artificial manure is applied to the surface occasionally. Young plants established in 3-inch pots should be placed into 5-inch pots, and grown until they come into bloom in cold frames. For decoration all the year round no better *Begonia* can be grown. A little seed should be sown to supply plants for autumn and winter-flowering. The seed must be sown on the surface of fine soil in a pan or pot, carefully watered and covered with a square of glass until it germinates.

Begonia parviflora* and *B. Dregei.—For summer decoration these are useful plants, and either may be grown, for they are very much alike. We prefer the last named. Anyone only having a greenhouse may grow either of these varieties to perfection, for when once they commence flowering they will continue to do so for months. They are useful for autumn and winter, but soon draw up weakly in stove heat, therefore we employ them only for summer decoration. Under cool treatment our plants are now in full beauty. If necessary to increase the stock of these varieties cuttings will root with great freedom in sandy soil in gentle heat, and will make by autumn fine little plants for ripening off for another season. *B. weltoniensis* requires the same treatment, and is a grand variety for the conservatory at this season of the year. Good loam, leaf soil, a seventh of decayed manure and sand will form a good compost for growing these plants in.

Tuberous Varieties.—These are amongst the most beautiful of plants, and the easiest of all to cultivate, and will, without doubt, be grown in future largely for decoration indoors in preference to Zonal Pelargoniums at this season of the year. Those brought forward in heat will be in full beauty, while those started under cool conditions will be developing strongly and vigorously. If these plants are young and leading away

with single stems pinch the top out of them, and they will break freely a number of shoots from the lower eyes of the stem. Some varieties branch without stopping, while others will not; and in order to have well-developed shapely plants for decoration in 6, 7, or 8-inch pots, stopping should be resorted to. When pinching is practised it requires longer to get the plants into flower, and should not be practised when the plants are wanted in bloom as early as possible. Grow in cold frames, and give abundance of water at the roots when the plants are growing vigorously. These plants must be carefully and judiciously shaded, for they cannot endure strong sunshine.

THE BEE-KEEPER.

THE DEPOSITION OF QUEENS.

My anticipations some weeks since that queens in stock hives would be deposed, from the continued strain upon their system through prolonged breeding during this untoward season have in many cases been verified, so that instead of the old queen accompanying the swarm, as she is commonly understood to do, a young one, or perhaps many, will issue. If more than one queen joins the swarm they do not settle readily, and when hived are liable to abscond, so that attention should be paid to swarms of this sort. The old queen is generally not deposed until a young one is hatched, so that the old queen deposits eggs to within a day or two of swarming. If the weather is fine there is no great loss, because the young queen will, if fertilised, lay more eggs than the old one would have done; hence after three weeks the hive is in a better condition, but there is a possibility she will remain sterile for a considerable time. If the weather is dull there is the risk of her being lost in her wedding flight, which if unobserved the hive would be lost. To prevent ruin and disappointment, and secure strong and profitable hives, strict attention should be paid to both stock and swarms for some days after. If the weather continues unfavourable, fertilised queens should be joined from the nuclei in reserve, and the unfertilised ones joined to them. This no doubt will cause a little trouble, but prevents mishaps and disappointment. When overhauling hives at this time under these circumstances superfluous drone combs should be excised, keeping a strict look-out to detect foul brood. If present take the necessary steps to get rid of it, for depend upon it, it is not to be trifled with, while bees breed better and are healthier in new combs than in old ones, the former being easier warmed than the latter during early breeding in spring.

Supers.—It is not a bad plan to super hives that are a little late in swarming, because it does not delay them; and such supers, if not too large and the weather fine, will be filled in a few days, and then finished in all its purity by old stock, whose bees are not as numerous after as before swarming. During dull rainy weather unfinished supers are very liable to be discoloured, from the bees crowding on them, which is not preventible unless removed and replaced when weather becomes favourable. With hives fitted with slides, such as the Stewarton, discoloration of the combs is easily prevented by the regulation of them. Remove all supers when sealed, and as long as the bees care to build comb, giving air from beneath during hot days, contracting at night if at all cold. Giving plenty of room, keeping the hive shaded and the supers well covered, is about all that is required this month, providing the other foregoing precautions have been taken.

Feeding.—At no time of the year is food more necessary than now if honey is scarce, but it should not be given in greater quantity than to encourage breeding and comb-building in hives not full, and prevent the drawing of eggs, grub, and young bees, which is sure to take place if hives are allowed to approach starvation. The quantity of sugar required depends upon the number of bees and state of the hive with combs. Those that are required for stock hives can be more liberally fed than those intended for honey, where it would be dishonest to give the bees sugar to store, then sell as honey. With such hives a quarter of a pound every night will be about enough to tide them over till honey is plentiful, which will come with settled weather and flowers now appearing.—A LANARKSHIRE BEE-KEEPER.

STEWARTON HIVES.

Your talented correspondent, "Lanarkshire Bee-keeper," is evidently an advocate of the Stewarton hive; he also refers to the advantage of a possible harvest from Heather.

As a keeper of bees in Stewartons, residing about ten miles from extensive moors, I should be very much obliged if he would give detailed instructions as to moving of bees in these hives to the moors, and as to the advisability of the risk with the enormous population in body boxes, ckes, and supers that these non-swarming hives invariably have in autumn. I conclude that "Lanarkshire Bee-keeper" would admit the distinct risk

under ordinary circumstances, with ordinary conditions, and on a favourably balanced spring cart.—F. W. S.

Will "Lanarkshire Bee-keeper" please give a detailed statement, with exact measurements, for making Stewarton hives, supers for same, and all other connections? Having seen and heard many statements of the advantages of those hives over others, I would like to try them, but do not know how to proceed. Which is the best way to find a queen bee in a hive or in a swarm? I have searched over three second swarms and carefully examined a bar-frame hive and could not get a sight of her. How should the search be conducted?—NOVICE.

"THE AMATEUR'S GUIDE TO BEE-KEEPING." By A. G. Dawson. Manchester: Geo. Falkner & Sons.—This is a small 4to. pamphlet by Mr. A. E. Dawson of Macclesfield, which treats of bee-keeping in a plain, intelligible, and concise manner, and is copiously illustrated by well-executed engravings of the various kinds of bees and the most approved apian apparatus. It will be very useful to beginners, as the instructions are not treated in a diffusive manner nor yet too technically, and the only omission we note is that Mr. Dawson has not given any instruction about "supering." This is a subject which puzzles beginners, and one of the questions we are most frequently asked is, "When must I put on supers?" No doubt Mr. Dawson will supply this in a subsequent edition. There is a very ample catalogue at the end of all kinds of hives and apparatus.



* * All correspondence should be directed either to "THE EDITOR" or to "THE PUBLISHER." Letters addressed to Dr. Hogg or members of the staff often remain unopened unavoidably. We request that no one will write privately to any of our correspondents, as doing so subjects them to unjustifiable trouble and expense.

Correspondents should not mix up on the same sheet questions relating to Gardening and those on Bee subjects, and should never send more than two or three questions at once. All articles intended for insertion should be written on one side of the paper only. We cannot reply to questions through the post, and we do not undertake to return rejected communications.

Pruning Ivy and Evergreens (*E. R., Bromsgrove*).—The worst time to cut Ivy on walls is just before "the cold weather sets in" in the autumn, as then the walls are bare and unsightly for months, besides exposing the stems to the action of possibly severe frost, and we have known them killed by such exposure. The best time to cut it is during showery weather towards the end of April or early in May, as then fresh growths appear at once, and a cheerful glossy face is produced. Once in three years is usually sufficient for shaving off Ivy close to the walls to which it clings, during the intervening years the runners simply being cut off with a knife, leaving the principal foliage. We know Ivy that has been thus managed for half a century, and in all probability more than twice that time, and it is in the most satisfactory condition. If evergreens need cutting down below the foliage, early spring is the best time; if the shrubs only need trimming into shape the work may be done at any time now until September.

Pelargoniums—Vines (*H. S.*).—The soiled condition of the Pelargonium leaves has not been caused by the Fir-tree oil, but by the insects against which it was applied. It is simply the filth of the pests taken possession of by a fungus, and there is no method of cleaning the foliage except with a sponge and soapy water. Shortly, however, the plants will be ready for cutting down, and if the shoots are severed, as they should be, below the leaves, you will effect a radical cure. Had the insects been prevented by timely syringings or fumigation there would have been no unsightly black patches on the leaves. You may cut down the Lemon-scented Verbena in the same manner as the Pelargoniums, or plant it out, when the fresh growths will be clean. It is quite impossible for anyone to give you a categorical reply to your question about the Vines without some knowledge of their actual condition. They may possibly have been rather overcropped last year, and the growths, perhaps, somewhat overcrowded and not satisfactorily matured. The laterals should be sufficiently far apart for the foliage to develop under the full influence of the sun, while at the same time as many leaves as possible should be allowed provided they do not overlap each other. On this principle, the roots of course being right, strong growth is insured, and with sufficient heat and air in the autumn matured wood, and strong, well-fed, matured wood is sure to produce good Grapes. A little fire heat in the autumn after the crop has been cut is often of great advantage in promoting the fruitfulness of Vines, and especially in cold northerly districts.

Outdoor Mushroom Beds (*S. L. B., Liverpool*).—Sawdust containing 70 to 75 per cent. of horse droppings, mixed with the equal quantity of straw manure, will answer admirably, provided you can make the ridges firm enough and the angle sufficiently acute to throw off the wet, and this we think you might accomplish by using a less quantity of sawdust with the manure for

the outsides of the beds, or a larger portion in the inside would be permissible. If woodlice are very numerous they are injurious to Mushrooms. You will soon find out whether they devour yours or not. They are not very easy to destroy, but they will not congregate in large numbers if you keep the material that covers the beds moist with an occasional sprinkling of salt and water. Woodlice object to this and Mushrooms do not, provided not more than an ounce of salt is mixed in each gallon of water. It may be well, perhaps, to intimate that this is about the worst period of the year for making outdoor Mushroom beds unless their position is exceptionally cool.

Azalea Flowers Malformed (*W. W. W.*).—It is by no means easy to indicate the cause of the petals of the flowers splitting in such an extraordinary manner. You say nothing about the condition of the plants nor the treatment to which they have been subjected, except indicating the temperature of the house in winter, and that we can assure you has had nothing to do with the case. It may be a consequence of immature growth, coupled with an accident in allowing the plants to get too dry when the flowers were forming, thus causing a withering and shrinkage of the petals when in an incipient state. This is the only suggestion we can offer in the absence of sufficient data to enable us to comprehend the condition of the plants.

Peaches and Nectarines Falling (*J. F., Godalming*).—The origin of the evil we attribute mainly to the powerful fumigations to which you allude at a critical period—namely, about the stoning time. Tobacco smoke in sufficient strength to kill the black aphid temporarily paralyses the trees, and the effect of this is seen sooner or later in falling fruit. Every endeavour should be made to prevent the insects getting established, and this can usually be accomplished by the free use of the syringe and such insecticides as may be needed for the purpose. The frost, if severe at the time you name, would aggravate the evil, but we can scarcely think it was so intense as to have such disastrous results; you do not, however, indicate its severity.

Proliferous Pelargonium (*E. O., Bishops Stortford*).—The moment the truss was removed every petal dropped—in fact, they nearly all of them were on the bottom of the box when the lid was removed. This is invariably the case when the petals are not sealed by touching the centre of each flower with a little clear gum. We are unable, however, at any time to undertake to name varieties of Pelargoniums or other florists' flowers, as they are far too numerous and too closely resembling each other for anyone to do so without comparing them with others in a large collection. Proliferous trusses are usually caused by too rich and insufficiently firm soil. Turfy loam with about a seventh part of decayed manure, and a little gritty matter is a suitable compost, and should be pressed into the pots as firmly as possible, many successful growers using a blunted stick for that purpose.

Soiled Foliage (*J. W.*).—The "smut" on the leaves of your "Myrtles, Orange trees, and other evergreens" in your house is the direct result of insects. The plants are probably infested with scale, if not with other insects, or plants above them are infested and the filth falls on the leaves below. A fungus then takes possession of it, and not only renders the plants unsightly, but impairs their health. They can only be thoroughly cleansed by sponging with warm soapy water, but some of the filth may be removed by forcible and frequent syringings. Half a wineglass of petroleum mixed with a gallon of water containing an ounce or two of softsoap in solution, and applied with a syringe, will destroy scale and most other insects, but should only be used during the evening, as if the sun shines on the plants before they are dry the leaves may be injured. It is a great mistake to allow plants to get into such a bad state, as much labour is involved in cleansing them.

Various (*Mrs. D.*).—We fear the ventilation of house containing the Vines and Peaches is defective, and we also suspect that the best has not been made of the means afforded for regulating the temperature. The warted appearance of the Vine leaves is the result of extreme evaporation, such as occurs when a house is kept closed too long in the morning and then the ventilators thrown widely open, as if to atone for the previous neglect or forgetfulness. The more limited the means of ventilation the earlier the lights should be opened. You do right by closing early, but an hour or two afterwards we should open the top ventilators slightly, leaving them open all night, and then give additional air within half an hour of the sun reaching the house in the morning, whether that occurred at six o'clock or earlier. The Peach trees are also suffering by want of early ventilation, hence the want of substance in the leaves and the attack of mildew on the fruit. There were evident signs of red spider, which seldom fails to attack enervated trees. Syringe them heavily twice a day until the fruit shows signs of ripening. Do not close the ventilators at night; open them earlier in the morning, and admit all the air possible before the maximum day temperature of the house is reached. There is nothing particularly the matter with the Sparmannia. There are a few insects on the leaves, which are also too pale in colour. Prune the plant slightly if needed, remove some of the old soil from the roots and add fresh, and as soon as fresh roots take possession of the new soil give clear soot water twice a week. The plant may be stood on ashes or other base impervious to worms in the open air, at first in a shaded place for a week or two, then where it can have sun, but shading the pot, this latter precaution being important in hot weather. Narcissuses can only be forced successfully a second year when great care has been bestowed on the plants in the production of good foliage under the influence of light and air after the flowers faded. This is seldom done, often because there is not a suitable position for the plants after flowering, and as a rule it is advisable to procure fresh bulbs for forcing, planting the old ones in the garden, where they become established and flower year after year with little or no cultural attention. We are glad you have succeeded so well with the other plants on which advice was given. The small spray was accidentally mislaid. Can you send another specimen for examination?

Melons Sweating (*H. B.*).—In all probability the wet state of the Melons was the result of a too low night temperature and the consequent deposition of moisture by condensation, and possibly, also, you did not admit air soon enough in the morning. If you maintain a night temperature of 65°, with a little ventilation at the top of the pit or frame, and open the ventilators further as soon as the heat rises in the morning, increasing the air with each 5° increase of temperature, you will not be troubled with

further "sweating," which is dangerous when so pronounced as described in your letter. The specimen was not in condition to be named. If you will send another so packed that it arrives in a fresh state it shall be attended to.

Roses for Roof (Old Subscriber).—You could not do better than plant Roses, and we do not doubt you will get a better return by so doing than if you retained the Vines. Plant three of *Maréchal Niel*, the same quantity of *Gloire de Dijon*, two *Lamarque*, two *Cheshunt Hybrid*, and one each of *Belle Lyonnaise* and *Reine Marie Henriette*. These are large strong growers suitable for furnishing the roof. If you can so arrange the planting as to include some of the smaller and less vigorous Tea varieties near the front of the house we should advise you to do so, for they will yield you a succession of bloom over a lengthened period. The following would do well in your house:—*Safrano*, *Niphetos*, *Madame Lambard*, *Marie Van Houtte*, *Etoile de Lyon*, *Alba Rosea*, *Catherine Mermet*, *Souvenir d'un Ami*, and *Innocente Pirola*. If more plants are required to make up the number plant extra plants of the second, third, and last but one as named.

Camellia Leaves Scorched (Inquirer).—The blotches on the leaves have not been caused by insects, but are the result of excessive evaporation—that is to say, the moisture has passed from them more rapidly than it has been supplied by the roots, hence the shrinkage of the leaves near the edges. Either the root-action of the plant is defective or it has not had sufficient water. Make the soil over the roots quite black with soot and water it in, giving sufficient water to pass quite through the border. Syringe the plant at the least twice a day in dry weather and keep it quite shaded, as plants thus enfeebled cannot endure the direct rays of the sun. Your object must be to lessen evaporation from the foliage, and if you effect this the plant, if not "too far gone," may possibly be restored.

Names of Fruit (C. Spider).—Winter Greening, or, as you say, French Crab.

Names of Plants (W. J.).—*Limnanthes Douglasii*. (R. F.).—*Hibiscus mutabilis*. (J. R. H.).—1, *Iris graminea*; 2, *Gladiolus byzantinus*; 3, *Centranthus ruber*; 4, *Adiantum Capillus-Veneris*. (South Wilts).—1, *Fuchsia splendens*; 2, *Oxalis corniculata rubra*, and is not the Shamrock, which is *Oxalis acetosella*; 3, *Alonsoa incisa*. (B.).—*Trifolium repens*, not the Shamrock. See reply above. (P. H.).—The blue flower is *Muscari monstrosum*, and the yellow one *Asphodelus luteus*. (R. L. K.).—*Avena elatior*, Tall Oat Grass. (M. F. G.).—*Cynoglossum officinale*. (W. W.).—1, *Staphylea pinnata*; 2, *Orchis maculata*; 3, *Habenaria bifolia*; 4, not recognisable; 5, *Cephalanthera ensifolia*; 6, *Allium ursinum*.

COVENT GARDEN MARKET.—JUNE 25TH.

HEAVY supplies of outdoor Strawberries to hand this week, and business somewhat quieter. Prices unaltered, with the exception of Strawberries, which are fast reaching their lowest value.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apples	½ sieve	1 6 to 5 0	Oranges	100	6 0 to 10 0
Chestnuts	bushel	0 0 0 0	Peaches	per doz.	6 0 12 0
Figs	dozen	4 0 6 0	Pears, kitchen ..	dozen	1 0 1 6
Filberts	lb.	0 0 0 0	„ dessert	dozen	1 0 5 0
Cobs	per lb.	1 3 1 6	Pine Apples English ..	lb.	2 0 5 0
Grapes	lb.	2 0 5 0	Strawberries	lb.	0 6 1 3
Lemon	case	15 0 21 0	St. Michael Pines ..	each	2 0 6 0

VEGETABLES

	s. d.	s. d.		s. d.	s. d.
Artichokes	dozen	2 0 to 4 0	Mushrooms	punnet	0 0 to 1 6
Beans, Kidney ..	lb.	0 9 0 0	Mustard and Cress ..	punnet	0 2 0 0
Beet, Red	dozen	1 0 2 0	Onions	bushel	2 6 3 0
Broccoli	bundle	0 9 1 0	Parsley	dozen bunches	2 0 3 0
Brussels Sprouts ..	½ sieve	0 0 0 0	Parsnips	dozen	1 0 2 0
Cabbage	dozen	0 6 1 0	Potatoes	cwt.	4 0 5 0
Capicums	100	1 6 2 0	„ Kidney	cwt.	4 0 5 0
Carrots	bunch	0 3 0 4	„ New	cwt.	5 0 5 0
Cauliflowers	dozen	2 0 3 0	Rhubarb	bundle	0 4 0 0
Celery	bundle	1 6 2 0	Salsafy	bundle	1 0 0 6
Coleworts doz. bunches		2 0 4 0	Scorzonera	bundle	1 6 0 6
Cucumbers	each	0 3 0 6	Shallots	lb.	0 3 0 6
Endive	dozen	1 0 2 0	Spinach	bushel	1 0 2 0
Herbs	bunch	0 2 0 0	Tomatoes	lb.	1 0 0 0
Leeks	bunch	0 3 0 4	Turnips	bunch	0 3 0 0
Lettuce	dozen	1 0 1 6	„ New	bunch	1 0 0 0



THE LONGHORN BREED OF CATTLE.

THE history and peculiarities of this breed of cattle are interesting and becoming more important for various reasons—its antiquity and the revival which has latterly taken place. Although the breeders of cattle generally in this country have their favourites at the present time, yet about the year 1720, and even up to a hundred years ago, Longhorns occupied a position in public favour very like that held now by the Shorthorn. We have no record of their having been sold at any period for thousands of pounds per head, but it must be remembered that money was not so plentiful as it is now. Still the breed of Long-

horns in the olden time obtained hundreds for their choicest animals of the best herds, for they were considered a hundred years ago as the most profitable cattle, both as producers of beef and of cheese, with which the farmers could stock their pastures, especially in the midland and north-midland counties. They did not, however, for long remain in the general estimation of the cattle breeders, for after the two first decades of the present century they were nearly superseded by the then rising Shorthorns, which filled their places.

The Longhorn cattle, their history and progress, has been well treated in an essay written by Mr. J. Nevill Fitt in the *Journal of the Royal Agricultural Society of England* in 1876, from which we propose to make occasional quotations; for although Mr. Fitt may not himself have been an enthusiast in their favour, yet he seems by dint of great research and well-described historical facts connected with this breed to have got together not only a body of practical facts upon the subject, but combined them in a most interesting manner in the valuable essay above referred to. Mr. Fitt observes:—"Well might it have been predicted when Bates, the Collings, and other noted breeders arose with giant-like energy to take the new comers in hand, and expended time, skill, and capital on their behalf, that the curly coats (Longhorns) would have a tough fight to maintain their supremacy. But the citadel was doomed to fall from weakness within rather than from assaults from without, and it was the want of due knowledge in the science of breeding amongst those who held them rather than any preponderating superiority on the part of their rivals that caused the gradual displacement of the Longhorn from our pastures and steadings. In fact, the Longhorn breeders attempted too much, and the breed may veritably be said to have been killed with kindness. They sought for over-refinement, and forgot that it is much more easy to lose than to regain hardy qualities and big bone, which any breed must have to be profitable in the hands of tenant farmers generally. Qualities for which the Longhorns had for many years been especially famous were ignored, and others of an exotic character endeavoured to be implanted on him, such as must eventually prove the ruin of any breed in which they are perpetuated without some counteracting influence.

"Those men who first took in hand the breed in its rough state and made it famous gradually passed away. Yet there were a few men who, knowing the intrinsic merits of the breed, stuck to them through good report and evil report, and, gaining experience by the failures of their predecessors, avoided the shoals and quicksands on which others had been wrecked. Patiently abiding their time they have held on long enough to see their favourites once more come into well-deserved esteem and take their place with our Shorthorns, Herefords, Devons, and so forth. With regard to his derivation little is known. Wherever he may have originally come from, I can only trace the history of the Longhorn with any accuracy from the northern parts of Leicestershire and the adjacent county of Derbyshire. He seems to have been first brought to perfection on the borders of the wild district known as Charnwood Forest, which at the time these cattle first came into notoriety was probably as wild and uncultivated as any spot to be found in England. Right well do these picturesque cattle match well with its sylvan beauty, and I am also tempted at times to think that the early improvers of the breed must have taken them in hand as much with an eye to the general fitness of things as for the sake of beef and cheese."

It appears from all we can learn that the earliest attempt in connection with the improvement of the Longhorns was made by Sir Thomas Gresley of Drakelow House, Burton, who took such delight in keeping a dairy of cows similar in colour and shape as early as the year 1720, and therefore many years before Bakewell assumed a position of celebrity and note amongst Longhorn breeders. To Sir Thomas, however, the majority of those who wished to excel and to improve their herds had recourse, and the generality of Longhorn cattle of the best type and style trace back to his time. It is also stated with great confidence that a breeder by the name of Webster of Canley, near Coventry, next made his appearance upon the scene. It seems that he also used the Drakelow cattle and crossed them with bulls from Cumberland and Westmoreland, which counties, without doubt, must have possessed valuable herds at that early period; and Mr. J. N. Fitt tells us that, "strange to say, of late years I have found some of the best breeders taking exactly a similar course, and going to those districts to procure bulls. Webster's best bull was Bloxidge, who was the sire of some very remarkable stock. Bakewell laid the foundation of his herd with a couple of Canley heifers and, like Webster's, a Westmoreland bull. So here we get the line direct to Sir Thomas Gresley's herd, and from him the blood was imparted to nearly all the herds of the country."

As we have constantly seen some of the Longhorns at the cattle shows we have been struck with their hardy and robust appearance as compared with some of the best-bred Shorthorns and Herefords. The day may come when a breed like the Longhorn may stand us in good stead when, from weakness of constitution consequent upon high breeding and high feeding, cattle of the present and days to come may be greatly benefited by the Longhorn blood in order to strengthen the constitution of some of our most cherished herds. We have seen in the above remarks as made by Mr. Nevill Fitt that the Longhorns at the early period lost caste, and, as it were, nearly killed with kindness, and that their constitutions under the treatment now resorted to for the prize-winning stock and herds of the present day became weakened. This will arise again in the Shorthorns, &c., at a future time without doubt more or less, and therefore it is highly desirable that the Longhorns as we now see them should be maintained as nearly as possible as they have been of late years, for it may prove eventually a mine of wealth to the best cattle breeders of the future. By utilising the Longhorn blood many herds may be improved, but especially of the Herefords for the Longhorn and Hereford in a cross would nick better than any other of our leading herds. We must also remember that the Welsh and some other breeds amongst which many inferior herds may be seen, would be greatly improved by a single cross with the Longhorn without loss of character, but especially those breeds which are found deficient in lean meat as well as weight for age and early maturity. We entertain a strong opinion that half-bred Hereford and Longhorn would be a cross capable of furnishing rare and valuable specimens of baby beef, and would make out great weights at two years old when boxed during their whole life, as we have frequently done it with Shorthorns. With the strong constitution of the Longhorn, combined with the aptitude to fatten of the Hereford, we can clearly see that the result would be very beneficial to the breeder and feeder of such a cross, for it is well known that the generality of baby beef animals, although often very fat, are more like veal than beef, yet with a full amount of firm lean flesh combined and obtained, as it would be by the Longhorn cross, would be a move in the right direction.

(To be continued.)

WORK ON THE HOME FARM.

Horse Labour.—Horses are still engaged by turns with hay-carting and preparing for seeding the land appointed for common Turnips. Swede-seeding having been finished, also the Cabbage-planting, the growth of which has been greatly improved by the late rains—in fact, we have never been favoured with finer rains than those which occurred about the 10th of June, which have been plentiful without being flooding as thunderstorms are frequently. The first growth of Mustard has been ploughed in, and the land worked fine as fast as ploughed and the second growth seeded for, which, after these fine rains, will be sure to be of quick growth, giving plenty of time before harvest for ploughing in and re-seeding for the third growth. That also must be ploughed in and the land seeded to Wheat without further manure, because this practice has been proved equal to a full crop of Wheat with Lent corn and Clover to follow without any further manuring; and if the second growth of Clover is ploughed in also the next crop of Wheat will be also abundant without any further manuring. Horse-hoeing the Mangolds, the Cabbages, the Carrots, and the Swedes will be the next work before hand-hoeing. As soon as the field hay has been stacked the meadow grass will be cut and made as soon as possible, for we have a large heap of earth and other composts now ready for laying-out as fast as the meadows are cleared of the hay. This will bring a full aftermath for feeding with young cattle, and prove equal to a full crop of hay the next year. We are now cutting and have nearly finished the early Trifolium now cutting for soiling horses and cattle; the late variety of white-blossomed will follow up and hold out until the second week of July, when the land will be all rafter-ploughed, worked down and scarified, then drilled with Greystone Turnip seed, manured with $2\frac{1}{2}$ cwt. per acre of bone superphosphate. In this way last year we got Turnip plants of thick and full foliage, the whole being ploughed in without any other manure for Wheat, and the Wheat promises an abundant crop of straw. The yield, of course, will depend on a favourable time for setting the grain and ripening.

Hand Labour.—Men and horses are mowing the grass for hay, and two horses being constantly engaged attached to the mower, but by relays of fresh horses every four or five hours, because it is very hard work although the crop is not so heavy this year as it has been on the average of a few past seasons. Men will be engaged at the stacking of hay, hoeing of Mangolds, Carrots, Cabbage, and Swedes as fast as they become ready for singling. In fact, after the second horse-hoeing and the Mangold plants properly set out and singled, $1\frac{1}{2}$ lb. of Greystone Turnip seed per acre will be sown broadcast over the field both of Mangolds and Swedes as they are drilled, or should be at 30 inches to 36 inches apart between the lines, in order to give the young Turnip plants a little light and air to favour the growth of foliage, for the object is to only produce gross foliage, to be ploughed in with greens of the Mangolds and Swedes, as the crops will be pulled and carted to the store for horses, cattle, and

dairy cows in the winter, for we entirely repudiate the feeding of sheep on the land in the winter months. The feeding of them on the land is a great drawback and displacement of the seeding for corn and sale crops, whereas cattle are fed at the homestead without injury to the land, especially dairy cows when properly managed and provided for by stores of Mangold, Cabbage, Carrots, and white Oat straw.

Live Stock.—Where a breeding flock is kept of the horned Dorset and Somerset ewes the rams now should be in service in order that the lambing time may commence in November; but the off-going ewes will have been with the rams for some time past in order that they may bring their lambs in October. The early Dorset Downs should now also be with the rams, for many of these flocks where kept on pastures of limestone subsoil will often bring lambs in November, and when thus early to lamb will make a long price to go into the southern and home counties for producing early lambs for the Metropolitan market at or before Easter. Bullocks grazing for beef on the best pastures will now be doing well, but should have access to water at all times; if, however, the pastures are not first-rate, the animals should soon get some cotton cake or Maize meal, or both, and if given with cut Mangolds mixed in their skeps they will do well; in fact, on those pastures which will not feed a bullock fat without trough food, a store of Mangolds should always be retained on purpose, for it is one of the best mediums of supplementary summer feeding which can be devised. Dairy cows now require particular attention, and if possible should be brought to the stalls in sunny weather during the heat of the day, getting a good bait of green fodder at milking time, both night and morning, of Clover, Trifolium, Vetches, &c.; and when in their stalls they will lie down in quietude as compared with the frantic excitement they suffer oftentimes under the attack of flies when in the fields, park lands, and pastures, for even when they take shelter under the trees they are still teased by the flies. This is frequently the cause not only of a diminution of the flow of milk in the summer, but also induces the animals to go dry at an earlier period. The castration of all male colts over a year old should not be longer deferred; and after the operation has been carefully performed by a skilful veterinary the animal should be kept in a quiet shady building or barn now until quite recovered before being allowed to run the pastures by day and by night. In the case of setting out an establishment for the suckling of calves for veal, it is best to arrange for taking such a number of calves as required per week or month with dealers who are prepared to supply them rather than trust to buying in the ordinary markets.

OUR LETTER BOX.

Houses for Cows and Calves (T. S.).—Our plan is to have the cows in boxes standing tethered two in each and their calves tethered behind them. These boxes are about 9 feet wide by 12 feet long, filled with earth at the bottom about 18 inches deep and littered with short straw as cleanliness dictates. This at all times furnishes a pure atmosphere for the calves to live in, particularly in the summer months when the cows go out to graze and only come in to suckle the calves twice in the twenty-four hours. The boxes should be made warm and the light excluded as much as possible, so that the calves should be induced to lie and sleep the greater part of the time between the hours of feeding and suckling, and also to prevent them being disturbed and annoyed by flies, which always follow the sunlight. In ordinary cowsheds the calves seldom have good healthy lairs, the air being often more or less impregnated with ammonia. This is often the cause of diarrhoea, the most fatal and damaging complaint to which calves are subject. It should be borne in mind that it is of far more consequence to maintain the health of veal calves than of the weaned calves, because the latter may live through it without any serious injury; but not so with the former, for although they may recover their health they will never recover the time lost whilst suffering from disease of any kind.

METEOROLOGICAL OBSERVATIONS.

CAMDEN SQUARE, LONDON.

Lat. $51^{\circ} 32' 40''$ N.; Long. $0^{\circ} 8' 0''$ W.; Altitude, 111 feet.

DATE.	9 A.M.					IN THE DAY.				Rain	
	Barometer at 32s and Sea Level	Hygrometer.		Direction of Wind.	Temp. of Soil at 1 foot.	Shade Temperature.		Radiation Temperature.			
		Dry.	Wet			Max.	Min	In sun.	On grass.		
1884.	Inches.	deg.	deg.		deg.	deg.	deg.	deg.	In.		
June.											
Sunday	15	30.308	60.1	53.3	N.E.	59.0	68.1	47.8	116.8	42.4	—
Monday	16	30.292	60.0	53.3	N.	59.2	65.0	51.2	111.0	46.2	—
Tuesday	17	30.187	55.4	59.3	N.W.	58.6	63.4	46.4	100.4	41.6	—
Wednesday	18	30.22	54.8	52.5	N.	58.6	61.5	47.3	93.7	43.3	—
Thursday	19	30.254	58.3	55.0	N.E.	58.2	71.4	53.7	101.9	51.6	—
Friday	20	30.238	58.6	55.7	E.	59.0	71.3	52.8	107.3	47.3	—
Saturday	21	30.233	56.7	52.8	N.E.	59.1	72.2	51.2	116.2	45.4	—
		30.235	58.0	53.4		58.8	63.0	50.1	106.8	45.5	—

REMARKS.

- 15th.—Generally fine.
 16th.—Rather cloudy.
 17th.—Generally dull, and a sprinkle of rain about 6.30 P.M., but not measurable.
 18th.—Another dull day, very little sun.
 19th.—Dull morning and frequently overcast.
 20th.—Slight fog early, and generally cloudy.
 21st.—Clear morning, but cloudy afterwards

A dry week of nearly average temperature, but with an excess of cloud.—G. J. SYMONS

